

**EFFECT OF NON-PERFORMING LOANS ON PROFITABILITY OF  
COMMERCIAL BANKS IN KENYA**

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## DECLARATION

I attest that this is my original research project submitted to the University of Nairobi only and no other learning institution locally or globally.

Signed 

Date 15/11/2022

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This project has been submitted for examination with my approval as the university supervisor

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## **DEDICATION**

This research project is dedicated to my parents, family, and friends for the support they have given me in my pursuit for further education.

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I acknowledge the support from my supervisor, Dr. Herick Ondigo. I also acknowledge the support from university lecturers and colleagues. I also appreciate my family for their moral support. I thank my friends for their encouragement.

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## LIST OF ABBREVIATIONS

|               |   |
|---------------|---|
| <b>ABSA</b>   | Amalgamated Banks of South Africa   |
| <b>BCA</b>    | Bank Central Asia   |
| <b>BLQ</b>    | Bank Liquidity Risk   |
| <b>CAMEL</b>  | Capital adequacy, Asset quality, Management, Earnings, and Liquidity              |
| <b>CAMELS</b> | Capital adequacy, Asset quality, Management, Earnings, Liquidity, and Sensitivity |
| <b>CAR</b>    | Capital Adequacy Ratio  |
| <b>CBK</b>    | Central Bank of Kenya   |
| <b>FE</b>     | Fixed Effects   |
| <b>GDP</b>    | Gross Domestic Product  |
| <b>GGDP</b>   | Growth Gross Domestic Product   |
| <b>GMM</b>    | Generalized Method of Moments   |
| <b>HBL</b>    | Habib Bank Limited  |
| <b>INF</b>    | Inflation Rate  |
| <b>KCB</b>    | Kenya Commercial Bank   |
| <b>LIQ</b>    | Liquidity   |
| <b>LTD</b>    | Loan to Deposit ratio   |
| <b>MAN</b>    | Management Efficiency   |
| <b>MFI</b> s  | Microfinance Institutions   |
| <b>MPT</b>    | Modern Portfolio Theory   |
| <b>MTBR</b>   | Market To Book Ratio  |
| <b>NBP</b>    | Narodowy Bank Polski  |
| <b>NIM</b>    | Net Interest Margin   |
| <b>NPL</b>    | Non-Performing Loan   |

|               |  |
|---------------|--|
| <b>NPLR</b>   | Non-performing loan ratio                          |
| <b>OLS</b>    | Ordinary Least-Squares                             |
| <b>PBT</b>    | Profit Before Tax                                  |
| <b>PLSSEM</b> | Partial Least Squares Structural Equation Modeling |
| <b>PT</b>     | Perseroan Terbatas                                 |
| <b>RE</b>     | Random Effects                                     |
| <b>ROA</b>    | Return On Assets                                   |
| <b>ROE</b>    | Return On Equity                                   |
| <b>SPSS</b>   | Statistical Software for Social Sciences           |
| <b>TBK</b>    | Triumph Bancorp INC                                |
| <b>TRWCA</b>  | Total Risk-Weighted Assets                         |

## ABSTRACT

The commercial banks in Kenya have shown reduction in the profitability levels with some sinking into losses to the extent of closing their doors. Non-performing loans and profitability has been a hotly debated topic in the recent years. The findings are mixed as the researchers exhibited positive with others showing negative or no effect of NPL on profitability. This study sought to determine the effect of non-performing loans on profitability of commercial banks in Kenya. To achieve this objective, the study adopted descriptive research design on 37 commercial banks that existed between 2016 to 2020. The survey used annual secondary data collected using data collection schedule. This data was collected from the annual financial reports of commercial banks sourced from the CBK website. This research adopted descriptive and regression analysis to establish the effect of NPL on profitability of Kenyan commercial banks. In testing significance of model, the researcher made use of F-statistical tests. From descriptive statistics, the study found that profitability as measured by return on assets that had a mean of 0.2528%. The study concludes that commercial banks in Kenya have low profitability levels as per Hargrave (2022) who indicated that a return on assets of less than 5% as poor. Non-performing loans had an average value of 48.1374%. This indicates that 48% of the gross loans of commercial banks in Kenya are non-performing loans. The study concludes that commercial banks in Kenya have a high level of non-performing loans as the levels were greater than 6%. Espinoza (2010) indicates that NPLs above 6% is assumed to be high. In addition, NPLs had a positive insignificant regression coefficient ( $r=0.0006$ ; sig.0.548). Regression analysis exhibited that capital adequacy had a significant negative regression coefficient ( $r=-0.0128$ ; sig.=0.042). Liquidity exhibited a mean of 21.6%. From the regression analysis, liquidity had a negative significant regression coefficient ( $r=-0.0424$ ; sig.=0.027). Firm size exhibited a mean of 10.6478%. From regression analysis, firm size had a positive regression coefficient against profitability ( $r=2.0750$ ; sig.=0.000). The study concludes that NPLs has an insignificant effect on profitability of commercial banks in Kenya; capital adequacy has a negative effect on profitability of commercial banks in Kenya; liquidity and firm size have a positive effect on profitability of commercial banks in Kenya. The study recommends that commercial banks in Kenya boost their profit margin and use their assets efficiently to increase sales; reduce NPLs; increase their total deposits level; increase the percentage of deposits issued as loans within the banks and increase the asset levels. The study was limited by the variables, the scope, the data as well as the period of study. The study recommends similar research based on different variables, firms, data and periods.

# CHAPTER ONE: INTRODUCTION

## 1.1 Background of the study

An efficient and well-functioning financial sector is essential for the development of an economy and the achievement of high and sustainable growth of any country (Katircioglu, Katircioğlu & Altinay, 2018). One of the indicators of financial sector health is non-performing loans. The most unsound financial sector shows a high levels of non-performing loans (NPL) (Mburu, Mwangi & Muathe, 2020). The causes of non-performing loans vary in different countries and there are so many reasons as to why loans fail to perform thus affecting the profitability of commercial banks.

This research was based on asymmetric information, bad management and modern portfolio theories. Asymmetric information theory postulates that in respect to transactions, the participant with less detailed info is always positioned to make either proper or bad decisions. As a result of the emergence of moral hazards and unfavourable selects, the number of non-performing loans may rise. Berger and De Young (1997) established the Bad Management theory, which states that inept leadership in financial institutions leads to poorer loan quality and low revenues, resulting in greater NPLs. Markowitz's Modern Portfolio Theory (MPT) by Markowitz (1952) explains ways in which investors can reduce risk while maximizing return by buying in a variety of assets. It promotes diversifying activities, that create a relatively steady revenue and opportunity to leverage management efficiency across products which minimizes nonperforming loans and boosts return on assets (ROA).

The theoretical base shows that the profitability issues of a firm can be a result of NPLs. Commercial banks in Kenya have been experiencing profitability issues in recent years. Despite the majority of the banks making profits, they have been experiencing reduced profits in recent years (CBK, 2020). The Kenyan commercial banks have experienced increasing NPLs in the last five years (CBK, 2020). This creates the need to research the effects of NPLs on profitability of commercial banks in Kenya.

### 1.1.1 Non-Performing Loans

Non-Performing loans are the type of loans in which banks are unable to recover the loaned amount. Non-performing loans are ones that do not generate income and for which total payments of principal and interest is no longer expected, principal or interest is ninety days or more overdue,

or the settlement date has elapsed with no full repayment (Hou & Dickinson) (2007). Non-performing loans are those in which the borrowers fail to meet their monetary obligations to pay the debt in accordance with the stipulated obligations (Kiff & Mills, 2007).

Non-performing loans lead financial firms to go bankrupt, which hurts the entire economy by prompting banks to be hesitant to extend credit (Karadima & Louri, 2021). In the event of a high NPL situation, banks are more likely to take out internal consolidation to improve asset quality, which reduces loan issuing. Due to the high amount of NPLs, banks must increase their provision for NPLs, lowering their revenue and reducing funds available for new lending, causing the corporate sector to suffer as they struggle to build their working capital (Oganda & Mogwambo, 2019).

The NPLs ratio and NPL coverage ratio are two popular measures of NPLs. The NPL coverage ratio is calculated by dividing the provision for expected losses on NPLs by the total number of NPLs. Provisions for Losses on NPLs are a measure of the amount of money set aside to cover losses on NPLs. The NPL to total loan ratio is referred to as the NPL ratio. Non-performing loans are calculated as a percentage of total loans and advances. The NPLs ratio, which is calculated by dividing NPLs by outstanding loans, was employed in this investigation. Skorburg and Shenai (2021) measured NPL through non-performing loan ratio. Appietu (2020), on the other hand, measured NPL in terms of Loan to Deposit ratio (LTD). However, Karadima and Louri (2021) measured NPL in terms of Net non-performing assets which relates to Gross NPAs less provisions for loss. This research measured NPL in terms of non-performing loans ratio.

### 1.1.2 Profitability

Profitability alludes to how much money a company can make given its assets. Profit maximisation is the primary purpose of many businesses (Niresh & Velnampy, 2014). Profitability pertains to a firm's capability to profit via all core business (Muya & Gathogo, 2016). Profit is typically the investor's return for his or her efforts. Profit is, in essence, an investor's primary motivation for starting a business. Profit is often employed as a metric for assessing a company's performance (Ogbabu, 2009). Profitability is a term that relates to a company's propensity to make money (Tulsian, 2014).

Profit is an essential outcome of running a firm (Cappa et al, 2019). The basic role of most businesses is to make a profit. A healthy and performing business has a positive bottom line

(Anvari & Turkay, 2017). Profit is money that businesses can put toward things like keeping the office or equipment in good working order, replacement or upgrading of vehicles or other high-cost goods, or investing in new products, services, or people (Barney, 2018). Organizations can hope to thrive in the future if they make good profits. The rate of return a banking institution has been able to achieve through employing the assets at its disposal to manufacture and offer services is a significant metric of bank performance (Nuhiu, Hoti & Bektashi, 2017). Banks create money when they gain or raise more income than they spend on costs. Profitability is also required for a bank to continue operating and for its investors to get reasonable returns (Yao, Haris & Tariq, 2018).

A bank's profitability could be measured using a variety of measures. Return on assets, ROE, and NIM are indeed the three strongest measures, as per Goudreau and Whitehead (1989) and Uchendu (1995). Hancock (1989) used ROE to assess profitability, while Odufulu used NIM to evaluate profitability (1994). Ahmed (2003) highlighted three metrics extensively used in the academics to quantify profitability: Net Interest Margin (NIM), Return on Assets (ROA), and Return on Equity (ROE). According to Akinola (2008) profitability measures include Profit Before Tax (PBT), Profit After Tax (PAT), ROE, Rate of Return on Capital (ROC) and ROA. Sanni (2009) made use of Earnings Per Share (EPS). Skorburg and Shenai (2021) quantified profitability as return on equity ratio (ROE) and market to book ratio (MTBR). Alshebmi et al (2020) measured profitability in terms of return on assets ratio (ROA). This study measured profitability in terms of the return on assets ratio.

### 1.1.3 Non-Performing Loans and Profitability

Any company, but especially commercial banks, utilises profitability as a yardstick to gauge overall performance. Conversely, a rise in NPLs damages ROA, which has a directly impact on banks profits. Non-performing assets consequently possess detrimental effect on ROA, a profits indicator. Banking revenues are eroded by NPLs since companies could have substantial disposition charges. Additionally, bankers typically put up money for non-performing assets, which has an influence on their profits. Additionally, there is a cost associated with making an effort to recover salvaged loans. Michael et al. (2006), emphasized that non-performing assets (NPA) in loan portfolio affect operational efficiency which in turn affects profitability of banks.

Empirically, the relationship linking non-performing loans has produced mixed results. Kitonyi, Sang and Muriithi (2019) established that financial performance (ROA) was positively affected by non-performing loans. Skorborg and Shenai (2021) found that NPL and bank profitability related negatively. This was supported by Do, Ngo and Phung (2020); and Kingu, Macha and Gwahula (2018) who found that non-performing loans had negative impact on the bank's profitability. However, Bismark (2021) and Alshebmi et al (2020) found an insignificant relationship linking NPL and profitability. This was similar to the findings of Anggriani and Muniarty (2020); and Ngungu and Abdul (2020).

#### 1.1.4 Commercial Banks in Kenya

Kenya's commercial banking sector consists of 42 banks, that are categorised into 3 major groups based on a preset composition of their net assets, capital and reserves, the share of savings, and loan portfolio. Large group banks are described as banks with a composite weighted index of more than 5% based on the established criteria (or tier 1 banks). Banks having a weighted composite index of 1-5% are classed as medium banks (or tier 2 banks), whereas those a weighted composite index of less than 1% are classed as small banks (or tier 3 banks). Kenya now has eight tier one banking firms, eleven tier two banking firms, and twenty-one tier-three banking firms (CBK, 2020).

The commercial banking sector has seen an unusual shift in market share during the last several years. Per the CBK (2020) research, banking firms in the tier one group increased their market share from 65.3 percent to 66 percent in the fiscal year ending 2020. Rising client deposits were a major contributor to the gain in market share, that is sure to persist through 2020. A similar upward trend was seen in the intermediate bank group, which increased from 26% in December 2019 to 26.10% in December 2020. The market share of the small banks, on the other hand, dropped by a stunning 1.5 percent, translating to a drop from 9 percent to 7.5 percent from the previous fiscal period. The merging of two tier three banking firms by both tier one and two banking firms in the very same fiscal year is substantially connected with a decrease in market control.

Per the CBK (2020) survey, capital and reserves in the financial sector increased by 7.8%. The rise was attributable to higher deposits mostly in large and medium peer subgroups, as opposed to a reduction in the small peer groups. During the same time period, profit in the commercial banking industry fell by 9.2 percent. Increased expenses in the industry have been blamed for the drop in

profit margin, which has been linked to a loss in client income. Conversely, income in the banking industry fell by 3.12% while expenditures rose by 0.5 percent over the same time.

## **1.2 Research Problem**

Banking institutions compete in highly volatile environments that carry a significant amount of risks. Theoretically, non-performing loans reduce the level of profitability of banks (Kingu, Macha & Gwahula, 2018). This has been accrued to the fact that non-performing loans reduce the interest income, operating profits and loanable funds within financial institutions like banks. The banks get their income from the loans and advances that are disbursed and if these loans are not repaid then it is not possible for them to receive profits (Kiran & Jones, 2016).

The commercial banks in Kenya have shown reduction in the profitability levels with some sinking into losses to the extent of closing their doors. This is based on the view that there are now 39 bankers in the Country, down from 44 five years ago. In the previous five years, the banking industry's profits had decreased by 30percent in 2020 (CBK, 2020). The aggregate net income for banking as of 2020 reached 13.9 percent, a significant decrease from the prior year (CBK, 2020). Individual banks that have shown problems in profitability include Kenya commercial bank and ABSA that experienced 40% and 89% deterioration in net incomes in 2020 correspondingly.

Non-performing loans and profitability has been a hotly debated topic in the recent years. In the international arena, Skorburg and Shenai (2021) studied the impact of NPLs on smaller US bank profitability and found that NPL and bank profitability related negatively. On the other hand, Do, Ngo and Phung (2020) looked at the effect of NPLs on profitability of commercial banks in Vietnam; while Alshebmi et al (2020) assessed NPL and Profitability of banks in Saudi Arabia. Other researchers who focused on the same topic included Anggriani and Muniarty (2020) who studied the effect of NPL on Profitability at PT. Bank Central Asia; and Jamali and Haneef (2020) who studied the impact of NPL on Profitability of HBL and NBP. In Africa, Bismark (2021) looked at NPL and Ghanaian Bank's Profitability. In addition, Nwosu, Okedigba and Anih (2020) studied NPL and profitability of the Nigerian Commercial Banks; Kingu, Macha and Gwahula (2018) studied the impact of NPLs on Tanzania's bank's profitability; while Munangi and Bongani (2020) did an empirical analysis of the impact of credit risk on the financial performance of South African banks. The findings are mixed as the researchers exhibited positive with others showing negative or no effect of NPL on profitability.



In Kenya, Om'mbongo (2020) explored the effects of NPL on profit level of banks and found mixed findings. Despite this study focusing on the same concepts and context, the study adopted different research methods compared to the current research. For instance, the research made use of primary data sources with the current research adopting secondary sources. Further, the study made use of Social Sciences software (SPSS) while the current one made use of STATA software for analysis. Ngungu and Abdul (2020) studied firm characteristics and NPL of commercial banks; Koskei (2020) studied non-performing loans and Banks' financial stability; Kitonyi, Sang and Muriithi (2019) studied NPL and financial performance of microfinance institutions; while Chege, Olweny and Opuodho (2018) studied effect of NPL management on financial performance of commercial banks.

From the reviewed studies, numerous gaps are in existence within area of NPL and profitability in banking. Conceptually, the majority of the local studies have compared different concepts. For example, Koskei (2020) focused on NPL and Banks' financial stability other than NPL and profitability. In addition, Ngungu and Abdul (2020) focused on firm characteristics and NPL; Chege, Olweny and Opuodho (2018) focused on NPL management practices and financial performance. Contextually, Kitonyi et al (2019) focused on microfinance institutions other than commercial banks. Methodological gaps exist in the research area. For example, Om'mbongo (2020) focused on the same concepts and context as the current study. However, the researcher adopted different research methods compared to the current research. For instance, the research made use of primary data sources with the current research adopting secondary sources. Further, the study made use of Social Sciences software (SPSS) while the current one made use of STATA software for analysis. The question is what is the effect of non-performing loans on profitability of commercial banks in Kenya?

### **1.3 Research Objective**

To determine the effects of non-performing loans on profitability of commercial banks in Kenya

### **1.4 Value of the Study**

Results from this investigation are of interest to commercial banking executives because they are aware of the negative impacts of NPLs on profitability and are encouraged to take the required

steps to reduce NPL occurrences. Other firms in Kenya's financial sector, such as microfinance institutions, savings and cooperative societies, insurers, and pension fund companies, will get benefits from the results because they will be able to define aspects that may affect their profitability in the same way that commercial banks do.

The outcomes of the research will be useful to numerous policy-making institutions in Kenya, including the CBK, KBA among other agencies, in developing guidelines that will help the banking industry in Kenya increase profitability and achieve its commercial goals.

Financial Consultants may utilize results from this paper to find out the susceptibility of profits to NPLs and then offer monetary guidance to bankers. Research outcomes should help give further material to reinforce current theories assertions together with upcoming studies.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This section gave literature review that was used in the research. This included both the theoretical and empirical research. This section also explained the determinants of profitability and the conceptual model.

### **2.2 Theoretical Review**

This research was based on asymmetric information, bad management and modern portfolio theories. These theories formed a basis for this study to create an understanding on theoretical nature of the variables.

#### **2.2.1 Asymmetric Information Theory**

Pagano and Jappelli's (1993) asymmetric information model is a well-known hypothesis that deals with situations when erroneous knowledge emerges, specifically when multiple parties possess differing information about one another. Whenever the borrowers possess better info about their economic state than lenders, this is an instance of asymmetric information in monetary marketplaces. Pagano and Jappelli (1993) demonstrated that exchanging knowledge on loan seekers can enhance bank info and reduce the likelihood of adverse selection. According to the hypothesis, it is difficult to distinguish linking a bad and a good borrower; this may influence lending behaviour and lead to adverse selection and moral hazards issues.

According to Auronen (2003), in the market, a party with greater knowledge can bargain favourable terms in the transaction. As a result, the party with the less detailed knowledge is in a place of making a correct or incorrect transaction decision. As a result of the moral hazards and adverse selections created, the number of NPLs may rise (Bofondi & Gobbi, 2003). In other circumstances, where bank executives have a better understanding of how NPLs affect profitability than stakeholders, the bank is much more prone to failure to disclose NPLs and be forced to employ provisioning for credit loss.

#### **2.2.2 Bad Management Hypothesis**

Berger and De Young (1997) established Bad Management Theory, which states that poor banking management leads to poor credit quality and decreased revenues, resulting in an increase in

nonperforming loans. This means that if loan administration is conducted with appropriate thoroughness, the volume of bad loans will decrease and profitability could rise. Poor managers, per this idea, dedicate more funds to underwriting and monitoring bad loans in order to reduce increasing NPLs. This raise running expenditures above interest revenue, resulting in a larger cost-to-income ratio in the long term (low-cost efficiency).

This theory is the basis for a large number of researches. For example, bank-specific characteristics such as performance and efficiency metrics affected the rate of NPLs substantially, according to Norden and Stoian (2014) and Louzis et al. (2010), reinforcing the notion. According to this hypothesis, the study should find a negative relationship linking NPLs and profitability.

### 2.2.3 Modern Portfolio Theory

Markowitz's Modern Portfolio Theory (MPT) is the most powerful economic theory dealing with finance and investing (1952). It's an economic hypothesis which aims to explain how diversifying an investment's portfolio could help them minimise risks whilst optimizing return. The theory has the final approach and serves as an essential influence in bank's research. It implies that investment diversifying and the desired investment structure are under a bank manager. Hence, institution's capability to produce high profits is highly based on collection of assets and liabilities that are viable, as well as the unit expenses experienced in creating each element of assets (Atemkeng & Nzongang, 2006).

Therefore, banks should think about restricting or lowering the risk of loans borrowers failing to repay loans on time, which would raise NPLs and have a adverse impact influences on profits. In addition, the idea of revenue expansions, which included the MPT concept, implied that consumers as well as bankers may spread its individual investments to lower corporate risk. Fundamentally, Modern Portfolio Theories promotes diversity since it offers a more stable revenue and the chance to leverage managerial efficacy among items, lowering NPLs and raising ROA in lenders. Disclosure is essential while obtaining a loan, per the Asymmetric Information Model; otherwise, both bankers and customers might suffer unintended effects, particularly banks winding up with high proportion of nonperforming loans (NPLs).

## **2.3 Determinants of Profitability Of Banks**

### **2.3.1 Capital Adequacy**

Capital adequacy demonstrate efficiency and capacity of banks to manage risks by measuring and controlling it (Almazari & Alamri, 2017). Adequate capital is defined as the amount that cushions banks from economic shocks by absorbing losses in the event they occur (Musyoka, 2017). According to Fatima (2014), sufficient capital adequacy makes certain that a bank has an appropriate level of capital for expansion of its business and its net assets are sufficient cushion it during financial downturns without risk of insolvency.

There are different ways of measuring capital adequacy. Different variables are used in the measurement. These include loan loss provisions against total assets, log of total assets, overhead expenses against total assets, tax against profit before tax, loans to assets, shareholders equity against total assets, total revenue against number of employees and non-interest income against total assets. The different measures aim to assess capital adequacy in different perspectives (Otwani et al., 2017). According to Fatima (2014) CAR is the amount of capital of a bank in relations to the total assets that are risk weighted and current liabilities. Risk weighted assets are the total assets of the bank adjusted for risks. It portrays the capability of the bank to offset liabilities as they arise including market risk, credit risk and operational risk. This study used core capital/ total deposits ratio as the measure of capital adequacy.

Empirically, Ichsan et al (2021) found that capital adequacy had a direct effect on profitability. Irawati, Maksum, Sadalia and Muda (2019) established that an insignificant link existed around capital adequacy and profitability. However, Thiongo and Kiama (2018) found a negative relationship linking capital adequacy and profitability.

### **2.3.2 Liquidity**

Liquidity refers to a bank's capability to pay debt commitments that arise over a 12-month period with cash and its equivalent, such as short-term assets that are easily convertible to cash. Liquidity is defined as a management's capacity to meet his or her monetary obligations to creditors without having to liquidate his or her other assets (Kabui, 2020). Liquidity is the extent to which persons or organisations have enough cash on hand to cover unforeseen and liquid obligations while still holding money that can be quickly converted into money for quick debt repayment. Liquidity is

the mechanism by which current assets protect an institution's obligations that are payable inside a single financial cycle. Liquidity is often thought of as the force and speed of turning receivables into cash. Zhang (2010) characterizes liquidity simply maintaining enough money on hand to cover disbursements from consumers and new receivables when they accrue.

Concerns with liquidity can have a negative impact on a banking organization's capacity to turn a profits but also putting the capital reserves at danger. Particular difficulties arise from the incapacity to finance short-term obligations, which could serve as the main reason for a bank's insolvency. It makes sense that lenders having liquidity issues could have trouble processing withdrawals requests from depositors. Scholars quantify liquidity utilizing only a variety of criteria. Husna and Satria (2019) used the current ratio, or the ratio of liquid to total assets, to assess their data. According to Durrah et al. (2016), the quick ratio relates liquid assets less inventories and current liabilities—measures liquidity. Kozarevic, Delic and Omerovic (2019) measured liquidity in terms of loan to deposit ratio. This study measured liquidity in terms of loan to deposit ratio.

From empirical research, Abubakar, Sulaiman and Haruna (2018) established that a positive link existed linking liquidity and profitability. Hasanudin, Nurwulandari, Adnyana and Loviana (2020) supported the findings where they established a positive effect of liquidity on profitability. Otherwise, Matar and Eneizan (2018) established a negative association around the two. This creates the need for analyzing the effect of liquidity on profitability

### 2.3.3 Firm Size

According to Ongore and Kusa (2013), a company's capacity for output is determined by the quantity of assets it possesses. A large firm has a lesser cost of producing, that lowers the probability of declining profits, as per Niresh & Velnampy (2014). In comparison to little businesses, bigger businesses are much more effective and effective at utilising economy of scale. The size of corporation is based on its assets, sales, workforce, and market dominance, among other factors. Company size was defined as the change in total of assets in this investigation.

As per Amato and Burson (2007), overall assets owned by an organization determines its size. In comparison to small organizations with less assets, it can be argued that the larger a company's assets are, the higher its capability to take on a big volume of projects with higher returns. Furthermore, as a comparison to their smaller competitors, the larger the enterprise, the greater the

value of security which can be committed in order to acquire bank credit (Chodorow-Reich et al, 2021).

Scientifically, the size of the company affects its profits (Abeyrathna & Priyadarshana, 2019; Opeyemi, 2019). According to Opeyemi (2019), profits growth and business size are positively correlated. Conversely, Ozcan, Unal, and Yener (2017) found no correlation linking business size and profits. But Kumar and Kaur (2016) previously demonstrated an indirect connection. As a result, research on company size and related connection to bankers' profits is necessary.

## **2.4 Empirical Review**

### **2.4.1 International Studies**

Skorburg & Shenai (2021) investigated influence of NPLs on post-crisis profitability and valuation of smaller US banks. This research looked at the research evidence on asset quality, profitability, and market value, as well as statistics particular to the banking business in the United States. The return on equity ratio (ROE) is used to examine the effect on profitability, while the market to book ratio is used to evaluate the effect on market value (MTBR). Three additional CAMEL ratios, in addition to NPL ratio, were employed as predictor variables to evaluate its effect on profitability and market value: capital adequacy (TRWA), liquidity (LIQ), and management efficiency (MAN). The impact of nonperforming loans (NPLs) and other factors on bank profitability and market value has been studied in smaller US banks. The data revealed an indirect relationship around NPLs and bank profitability.

Do, Ngo and Phung (2020) investigated the impact of NPLs on the ability to make profit of Vietnamese commercial banks in the period of 2008 to 2017. The study used descriptive survey. Linking 2008 to 2017, fifteen Vietnamese banking institutions were investigated. Secondary information on parameters in the scientific models is gathered from trustworthy sources. From 2008 to 2017, data was gathered from the World Bank's Vietnam division. The annual survey of banking institutions provides additional data for computing parameters like profitability, loans to deposits ratio, NPLs, and banking sizes. Non-performing loans have an indirect influence on banker's profits, according to the report.

Non-performing loans and related influences on profits of Saudi Arabia's bankers were studied by Alshebmi et al (2020). The survey's sample comprises all 12 banks present in Saudi Arabia. The

report makes use of panel data spanning 2009 and 2018. A range of analytical approaches were used in the investigation, including descriptive statistics, correlation, and linear regression. The correlation linking NPLs and ROA was weak and inverse. It also suggests a small but positive association linking NPLs and capital adequacy ratios (CAR).

Anggriani and Muniarty (2020) looked at the effect of NPLs and capital adequacy ratio (CAR) on profitability at PT. Bank Central Asia (BCA), Tbk. This analysis took an experiential and quantitative methodology. All subjects at PT. Bank Central Asia (BCA), Tbk for 44 years, from 1974 to 2018, were included in this investigation, with a sample size of nine years, from 2010 to 2018. Purposive sampling is the technique used in this investigation. Traditional hypotheses, multiple linear regression is used in the data analysis approach. Non-performing loans have no effect on ROA, per the findings of this investigation. The Capital Adequacy Ratio has a strong impacting on Return on Asset. At the same time, this research shows that NPLs and Capital Adequacy Ratio had an insignificant impact on ROA at PT. Bank Central Asia, Tbk.

Jamali and Haneef (2020) researched on impacts of NPLs on profits of HBL and NBP. Researchers utilized explanatory research approach. Cause and effect research design is used. Secondary data of both HBL and NBP was collected from their official financial statements of 10 years from 2018-2018. By using SPSS, multiple regression was run. On the basis of results, it is concluded that an inverse link existed around NPLs and profits of HBL and NBP. It is also found that HBL is good in getting the profit while securing itself through investing in Govt bonds and securities whereas NBP is not getting that return from its operations.

An analytical assessment evaluating potential effects of NPLs on banker's profits at the Dhaka Stock Exchange (DSE) was conducted by Akter and Roy in 2017. The analytical findings show that NPLsratio for the bankers was quite large with the listed bankers contributing to majority of the NPLs in the banking sector from 2008 to 2013. Additionally, it has a significant impact on banks' profits. Both NPL and NPM were determined to have a favorable link by the analysis.

#### 2.4.2 Regional Studies

Bismark (2021) studied NPLs and banker's profits in Ghana. The study used information collected from seven (7) indigenous universal banks in Ghana. Financial statement spans from the year 2009 to 2019. The study adopts explanatory research design and employs panel data analysis. With



regards to bank profitability, the study revealed that NPL had no substantial influence on bank profits.

Non-performing loans and profits of Nigerian banking institutions were investigated by Nwosu, Okedigba, and Anih (2020). The panelled fixed effects and auto-regressive distributed lag modelling were used to examine data from 18 banks from quarter 1 of 2014 to the 4th quarter of 2018. Nonperforming loans had inverse and scientifically noteworthy effect on banks income, according to empirical findings. The majority of the coefficients of other bank profitability factors were in accordance with apriori assumptions. Poor bank profitability can be accounted by a larger amount of NPLs, according to the paper.

Appietu (2020) investigated non-performing loans and profitability in various Ghanaian listed banks. This investigation used secondary data in panel form that spans the years 2006 to 2017. The secondary data was gathered from financial statements and website belonging to Bank of Ghana. To analyse the drivers and their impact on the banks' profitability, regression analysis was used. For the selected banks, the data demonstrated a decrease trend in NPLs. Nonperforming loan factors include the loan to deposit ratio (LTD), CAR, ROE, inflation rate (INF), and gross domestic product (GDP). Non-performing loan had inverse and minor influence on ROA; however, it had a noteworthy and inverse impacts on ROE. According to the findings, banks must enhance their ROE and ROA in order to reduce their exposure to NPLs.

Mrindoko, Macha, and Gwahula (2020) investigated NPLs and commercial bank performance in Tanzania. The investigation used a longitudinal explanatory research methodology using panel data from 41 Tanzanian financial institutions, as well as macro data (2006 to 2019). Regression as well as PLSSEM, were used to examine the data. The investigation found that NPLR had a inverse and non-substantial link with both ROE and ROA, per the findings.

Backed up by evidence from Tanzanian commercial banks, Kingu, Macha, and Gwahula (2018) investigated the influence of NPLs on bank profits. This investigation used a causality research methodology and panel data from 16 Tanzanian banks from 2007 to 2015. Ordinary Least-Squares (OLS) modelling method is applied, followed by the consideration of specification test. Non-performing loans are discovered to be negatively connected with banks' profitability in Tanzania, according to the investigation.

Munangi and Bongani (2020) looked at the influence of credit risk on 18 South African banks' financial performance from 2008 to 2018. To investigate the association, panel data approaches such as pooled ordinary least squares (OLS) were used. Credit risk was found to be inversely associated with financial performance, according to the findings of this research. As a result, high rates of NPLs produces poorer the banking institution's profits.

#### 2.4.3 Local Studies

Om'mbongo (2020) looked at effects of NPLs on profitability of commercial banks. The research used descriptive survey research design. The investigation populace included senior employees in credit department of the 42 banks. Census was conducted by collecting information from one officer in the credit department of commercial banks in Kenya. Data was collected using a structured questionnaire, which contained both open and closed ended questions. Data was analyzed to obtain both descriptive and inferential figures. Data was displayed in form of tables in order to give a clear visual presentation at a glance. The results revealed that NPL was significant in defining level of profitability of commercial banks. When NPL levels was high, interest income, operating profits and loanable funds would be low, which subsequently reduces the profit levels of the bank.

Ngungu and Abdul (2020) studied the firm characteristics and NPL of commercial banks. Under this study, a causal design was employed. The demographic to be studied consisted of 40 banks through 2013 to 2017. The investigation was conducted using a census method. Secondary data was acquired from such firms' audit reports. The descriptive and panel regression analyses were used to examine info. Outocmes revealed that liquidity seemed to have no effect on NPLs at Kenyan commercial banks.

Backed by facts from Banks, Koskei (2020) investigated NPLs and bank financial stability in Kenya. Utilizing secondary information from 2015 to 2019, this investigation analysed data using a multivariate regression technique. The NPL ratio has a direct and scientifically significant link with the bank's financial soundness as indicated by the Z a-score. The findings suggested that NPLs in Kenya's banks have an impact on the financial stability of the institutions. The outcomes of the loan-to-deposit ratio revealed a favourable but statistically irrelevant association linking bank financial stability and loan-to-deposit ratio.

Kitonyi, Sang, and Muriithi (2019) investigated NPLs and microfinance institutions financial performance in Kenya. The analysis relied on secondary data, from financial records. Other secondary information comprised financial performance and NPL books, periodicals, online reading, and other resource resources. Moral hazard theory, current portfolio theory, stakeholder theory, and financial accelerator theory drove the research. The investigation made use of a descriptive methodology utilizing cross-sectional info from years 2013 to 2017. The report's target group consisted of four MFIs operating in Kenya that were authorized to receive deposits and lend money, and the sample group was chosen using the census method. Microsoft Excel and SPSS software were employed to generate regression statistics. Generally, investigation found that NPLs had a considerable and beneficial impact on performance.

Chege, Olweny, and Opuodho (2018) descriptively explored bearing of NPLs procedures on banks' performance. Survey's targeted demographic was three heads of department representing selected banks. The sample size had 65 participants due to the use of stratified randomly chosen to choose 50% of the target population. Researcher's analysis of the bank's credit risk, credit insurance, debt collection practices reflected a favourable association with financial performance. Credit insurance has the greatest impact with credit risk analysis showing the least.

## **2.5 Conceptual Framework**

The researcher conceptualized the variables through a conceptual model. The independent variable was NPLs among banks. Dependent variable was profitability. The relationship linking the independent and dependent parameters controlled by capital adequacy, liquidity and firm size. The relationship was shown by figure 2.1.

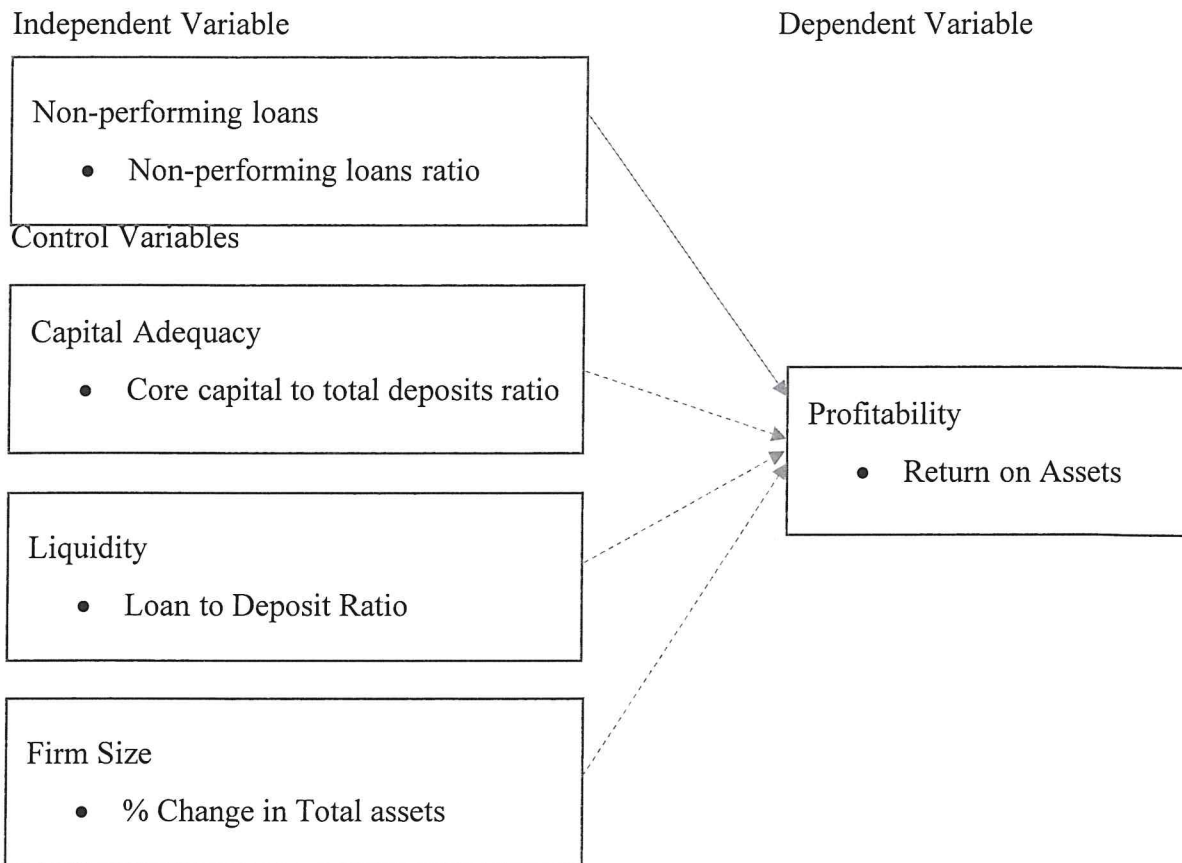


Figure 2.1: Conceptual Framework

## 2.6 Summary of Literature Review

This chapter exhibited the theoretical and empirical review on NPL and profitability. Researcher reviewed researches done on NPLs and profitability. Literature was reviewed from international regional and local empirical studies. The theoretical and empirical review shows that NPLs affect profitability. Theoretically, NPLs reduces loanable funds which reduces profitability. The empirical studies show mixed results on effects of NPLs on profitability. Empirical review also shows various gaps existing within the area of NPLs and profitability in banking. Majority of the researches reviewed have been done internationally and other financial firms other than banks. In addition, the local studies have focused on other concepts other than NPLs and profitability. This exhibited that knowledge and research gaps existed creating the need for a study effect of non-performing loans on profitability of banks in Kenya.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter gives research methods which was utilized by the researcher. They included research design, population, data collection, diagnostic tests and data analysis.

### **3.2 Research Design**

This research adopted a descriptive research design. Durrheim (2006) argued that a descriptive research design is useful in the descriptive process for the phenomenon under observation while establishing the way the variables relate. This enabled the researcher to establish the cause-effect relationship linking NPLs and profitability in commercial banks in Kenya.

### **3.3 Population**

The target participants were commercial banks in Kenya. This survey involved banks existing in the span of 2016 and 2020. According to CBK (2020), there are 39 commercial banks that existed linking 2016 and 2020. This period was preferred as it gave the most recent data. This period also saw the banks experiencing increased profitability issues together with increased level of NPLs. Hence, this period was the best in establishing the effects of NPLs on profitability of Kenyan commercial banks.

### **3.4 Data Collection**

This survey used secondary data. The data was composed via data collection schedule. This data was gathered from annual financial reports of commercial banks. The annual reports was sourced from the CBK website. The research utilized annual panel data for commercial banks for five years linking 2016 and 2020. This gave a total of 195 data points.

### **3.5 Diagnostic Tests**

Various tests were done to diagnose the data and the model. This involved specification test, heteroscedasticity, multicollinearity and normality. Specification test was done using Housman test to choose linking random and fixed effect model. Where the statistics show a pvalue above 0.05, the random effect model is preferred. Where the pvalue is below 0.05, the fixed effect model is preferred. Normality was undertaken to establish whether the data is normally distributed. This was done via Shapiro Wilk test. The test assumes that data follows normal distribution. Where the

values are greater 0.05, the data follow normal distribution and vice versa. Heteroscedasticity was checked via Breusch Pagan test to scrutinize consistency of the variance of the error term. If the pvalue is greater than 0.05, no heteroskedasticity in the data. Where the pvalue is below 0.05, heteroskedasticity exists. To remove the problem, the researcher could transform or redefine the dependent variable. Multicollinearity was checked via VIF to check on linearity of the predictor variables. A VIF above 5 indicates that multicollinearity exists. To remove this, the researcher could use different measures of the predictors or drop the predictor with the highest VIF.

### 3.6 Data Analysis

This research adopted descriptive and inferential analysis techniques. Descriptive statistics was used for descriptive analysis. This involved the use of mean, standard deviation, minimum and maximum. Regression analysis was done to establish the cause-effect relationship linking NPL and profitability of Kenyan commercial banks.

#### 3.6.1 Analytical Model

This research adopted the following model:

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon$$

Where;

$Y_{it}$  – Profitability as gauged by return on assets ratio of firm i at time t

$\beta_0$  – Constant term

$X_{1it}$  –NPLs as measured by non-performing loan ratio of firm i at time t

$X_{2it}$  – Capital adequacy as measured by shareholders capital to deposits ratio of firm i at time t

$X_{3it}$  – Liquidity as measured by loan to deposit ratio of firm i at time t

$X_{4it}$  – Firm size as gauged by % change in total assets of firm i at time t

$\beta_1$ -  $\beta_4$  – Regression coefficients

$\epsilon$  – Error term represents other factors influencing profitability

#### 3.6.2 Significance Tests

In testing significance of model, the researcher made use of F-statistical tests. The significance of the F value was checked using the p value. Where the pvalue is less than 5%, the model is assumed to be significant. On the other hand, where the pvalue is greater than 5%, the model is assumed to be insignificant. The fitness of the regression model was checked by comparing the calculated and the critical F-value. Where the calculated value is greater than the critical value, the model fits data and is considered to be the best model to use in the research. On the other hand, where the calculated value is less than critical value the model does not fit the data and may not be the best model for the data.

### 3.6.3 Measurement of Variables

Table 2.1: Measurement of Variables

| Variable Type | Variable             | Indicators                      | Measurement   |
|---------------|----------------------|---------------------------------|---|
| Dependent     | Profitability        | Return on assets                | $\frac{\text{Profit after tax}}{\text{Total assets}}$                                     |
| Independent   | Non-performing loans | Non-performing loans ratio      | $\frac{\text{Non-performing loans}}{\text{Gross loans}}$                                  |
| Control       | Capital Adequacy     | capital to total deposits ratio | $\frac{\text{Shareholders Capital}}{\text{Total Deposits}}$                               |
|               | Liquidity            | Loan to deposit ratio           | $\frac{\text{Total loans}}{\text{Total deposits}}$  |
|               | Firm Size            | % Change in total assets        | $\frac{\text{total assets}_1 - \text{total assets}_{-1}}{\text{total assets}_{-1}} * 100$ |

## CHAPTER FOUR: DATA ANALYSIS AND PRESENTATION OF FINDINGS

### 4.1 Introduction

This chapter presented the findings of the investigation based on the research objective. This survey sought to determine effects of non-performing loans on profitability of commercial banks in Kenya. The findings are based on annual data collected from 37 out of the 39 commercial banks in Kenya linking 2016 and 2020. Analysis of the data was based on descriptive statistics as well as regression analysis with the statistics generated using STATA 14. This chapter is based on variables (Y and X) where Y is profitability, X1 is non-performing loans, X2 is capital adequacy, X3 is liquidity while X4 is firm size.

### 4.2 Descriptive Statistics

Table 4.2: Descriptive Statistics

| Variable | Obs | Mean     | Std. Dev. | Min       | Max      |
|----------|-----|----------|-----------|-----------|----------|
| Y        | 185 | .2528114 | 5.761364  | -54.9135  | 8.3346   |
| X1       | 185 | 48.1374  | 371.9081  | .0818449  | 5064.255 |
| X2       | 185 | 32.94439 | 60.39693  | -37.97204 | 558.0769 |
| X3       | 185 | 21.56346 | 20.50143  | .3958     | 77.36    |
| X4       | 185 | 10.64782 | 1.367717  | 7.867106  | 13.53889 |

From table 4.2, in the period linking 2016 and 2020, profitability measured by return on assets had a mean value of 0.2528%. This indicates that commercial banks in Kenya had low profitability levels in the timespan based as Hargrave (2022) recommends at least 5%. Profitability also exhibited a Std dev of 5.761% showing high variation in profitability among the banks within the period.

Non-performing loans exhibited a mean of 48.1374% showing that 48% of the gross loans were non-performing for commercial banks in the research period. The NPLs had a Stad devi of 371.9081 indicating NPLs speckled highly across commercial banks within the period linking 2016 and 2020.

Within the period linking 2016 and 2020, capital adequacy averaged at 32.9444%. The capital adequacy is greater than the minimum requirements of 10.5% under Basel III. This indicates that



commercial banks had a high capital adequacy hence would have better chances of surviving a financial downturn. Capital adequacy exhibited a standard deviation of 60.3969%. This shows that among the commercial banks, the capital adequacy differed a lot across the period linking 2016 and 2020.

Liquidity exhibited a mean of 21.5635% for the period linking 2016 and 2020. This indicates that within the period, banks had given only 21% of their deposits as loans. This means that the commercial banks were not earning as much as it could be from its deposits. Liquidity, within the same period, exhibited a standard deviation of 20.5014% indicating that the liquidity among commercial banks didn't differ much across the period.

Firm size exhibited a mean of 10.6478% in the period between 2016 and 2020. This indicates that commercial banks in Kenya have experienced a 10% increase in size in terms of total assets. Within the same period, firm size exhibited standard deviation of 1.3677. This exhibited that, within the period linking 2016 and 2020, there was a low speckling in firm size among the commercial banks in Kenya.

### 4.3 Diagnostic Tests

Table 4.3: Model Specification

|    | Coefficients  |              |                     |                             |
|----|---------------|--------------|---------------------|-----------------------------|
|    | (b)<br>random | (B)<br>fixed | (b-B)<br>Difference | sqrt(diag(V_b-V_B))<br>S.E. |
| X1 | .0006023      | .0006165     | -.0000141           | .0003449                    |
| X2 | -.0127689     | -.0049642    | -.0078047           | .0021491                    |
| X3 | -.0424096     | -.0412979    | -.0011117           | .                           |
| X4 | 2.075079      | 2.050851     | .0242281            | .                           |

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

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V\_b-V\_B)^(-1)](b-B)  
 = 13.07  
 Prob>chi2 = 0.0109  
 (V\_b-V\_B is not positive definite)

Model specification test specifies the most fit model for data linking random and fixed effects. The test was done through Hausman test. The null hypothesis is that random effects model is preferred.

From the findings, the data exhibited a p-value of 0.0109 which is less than 0.05. Therefore, the researcher rejects the null hypothesis and assumes that the fixed effect model is preferred for this study.

Table 4.4: Normality Test

Shapiro-Wilk W test for normal data

| Variable | Obs | W       | V       | z      | Prob>z  |
|----------|-----|---------|---------|--------|---------|
| Y        | 185 | 0.51897 | 67.063  | 9.638  | 0.00000 |
| X1       | 185 | 0.07215 | 129.357 | 11.144 | 0.00000 |
| X2       | 185 | 0.33800 | 92.293  | 10.370 | 0.00000 |
| X3       | 185 | 0.80609 | 27.033  | 7.556  | 0.00000 |
| X4       | 185 | 0.95782 | 5.880   | 4.060  | 0.00002 |

Normality test looks at whether the variable data follows a normal distribution. It was done through Shapiro-Wilk statistics. The null hypothesis is that the data for the variables is normally distributed. From the results, all the variables had pvalues below 0.05. This leads to the researcher rejecting the null hypothesis, hence, concludes that the study variable data was not normally distributed.

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Y

chi2(1)      =      8.75
Prob > chi2  =      0.3681
```

Figure 4.2: Heteroscedasticity Test

Heteroscedasticity indicates an error term that is not constant over time. Heteroscedasticity was checked using Breusch–Pagan statistics. The null hypothesis is that the error term is constant over time and heteroscedasticity does not exist in the data. The results show that the Breusch–Pagan statistic had a pvalue of 0.3681 which is more than 0.05. Hence, the researcher does not reject the null hypothesis. This leads to the conclusion that heteroscedasticity issues do not exist in the variable data.

Table 4.5: Multicollinearity Test

| Variable | VIF  | 1/VIF    |
|----------|------|----------|
| X4       | 1.15 | 0.869893 |
| X3       | 1.11 | 0.904043 |
| X2       | 1.03 | 0.966774 |
| X1       | 1.01 | 0.989821 |
| Mean VIF | 1.08 |          |

Multicollinearity indicates the presence of a linear relationship among the predicting variables. Multicollinearity test was done using the variance inflation factor. The null hypothesis is that Multicollinearity does not exist in the data. The findings exhibited a mean VIF of 1.08 which was less than 2 indicating very low inflations of the variance. Therefore, the researcher does not reject the null hypothesis that Multicollinearity does not exist in the variables data.

#### 4.4 Regression Analysis

Regression analysis was done to determine the effects of non-performing loans on profitability of commercial banks in Kenya. The regression analysis was done using a panel regression model.

Table 4.6: Model summary

| Source   | SS         | df  | MS         | Number of obs | = | 185    |
|----------|------------|-----|------------|---------------|---|--------|
| Model    | 1576.35352 | 4   | 394.088379 | F(4, 180)     | = | 15.65  |
| Residual | 4531.21729 | 180 | 25.1734294 | Prob > F      | = | 0.0000 |
|          |            |     |            | R-squared     | = | 0.2581 |
|          |            |     |            | Adj R-squared | = | 0.2416 |
| Total    | 6107.57081 | 184 | 33.1933196 | Root MSE      | = | 5.0173 |

From the regression model summary, the model exhibited F-statistics of 15.65 with a significance value of 0.0000. The calculated f-statistics are greater than the critical f statistics indicating that the fixed effect model fits the data. The pvalue is less than 0.05 indicating that the model is significant and hence conclusions can be made based on the results from the model. The model shows an R squared (between) of 0.2581. This indicates that NPLs, capital adequacy, liquidity and firm size contributed 25.81% change in profitability of commercial banks linking 2016 and 2020. The remaining change in profitability among the firms can be accrued to other factors influencing profitability apart from NPLs, capital adequacy, liquidity and firm size.

Table 4.7: Regression coefficients

| Y     | Coef.     | Std. Err. | t     | P> t  | [95% Conf. Interval] |           |
|-------|-----------|-----------|-------|-------|----------------------|-----------|
| X1    | .0006023  | .0009997  | 0.60  | 0.548 | -.0013702            | .0025749  |
| X2    | -.0127689 | .0062285  | -2.05 | 0.042 | -.0250592            | -.0004785 |
| X3    | -.0424096 | .0189751  | -2.24 | 0.027 | -.0798518            | -.0049674 |
| X4    | 2.075079  | .2899568  | 7.16  | 0.000 | 1.502927             | 2.647231  |
| _cons | -20.53608 | 3.059975  | -6.71 | 0.000 | -26.57412            | -14.49804 |

From the data analysis,

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \beta_4 X_{4it} + \epsilon$$

was fitted into the equation

$$Y_{it} = -20.5360 + 0.0006X_{1it} - 0.0128X_{2it} - 0.0424X_{3it} + 2.0750X_{4it}$$

From the regression analysis, the data model shows a constant of -20.5360 indicating that where the predictor variables (NPLs, capital adequacy, liquidity and firm size) remain constant, the profitability of commercial banks would stand at a value of -20.536%. This shows that if the predictors don't change the commercial banks would show a negative return on assets. From the model, NPLs show a regression coefficient of 0.0006. This indicates that where the other predictors are held constant, a unit increase in NPLs would increase profitability of commercial banks by 0.0006. The regression coefficient was insignificant since pvalue of 0.548 was greater than 0.05.

Further, capital adequacy exhibited a regression coefficient of -0.0128. This indicates that where the other predictors are held constant, a unit increase in capital adequacy would decrease profitability of commercial banks by 0.0128. The regression coefficient was significant since pvalue of 0.042 was less than 0.05.

Liquidity exhibited a regression coefficient of -0.0424. This indicates that if other predictors are held constant, a unit increase in liquidity would decrease profitability of commercial banks by 0.0424. The regression coefficient was significant since pvalue of 0.027 was less than 0.05.

Firm size, from the regression model, had a regression coefficient of 2.0750. This indicates that where other predictors are held constant, a unit increase in firm size in terms of assets would increase profitability of commercial banks by 2.0750. The regression coefficient was significant since pvalue of 0.000 was less than 0.05. From the regression coefficients, NPL exhibited an

insignificant effect on profitability while capital adequacy, liquidity and firm size had a significant effect on the profitability of the commercial banks.

#### **4.5 Interpretation of the Findings**

From the regression analysis, NPLs show an insignificant positive regression coefficient. This indicates that NPLs had no significant effect on profitability of the commercial banks. This means that change in NPLs would not have any significant influence on the profitability. The findings are the same as those of Bismark (2021); Alshebmi et al (2020); Anggriani and Muniarty (2020); and Ngungu and Abdul (2020) who found an insignificant relationship linking NPL and profitability. However, the findings are different from findings of Kitonyi, Sang and Muriithi (2019) who found a positive effect; and Skorburg and Shenai (2021) who found that a negative impact.

Further, capital adequacy exhibited a negative and significant regression coefficient. This indicates that capital adequacy had a negative effect on profitability of commercial banks. The findings are similar to the findings of Thiongo and Kiama (2018) who found a negative relationship linking capital adequacy and profitability. However, the findings differ with those of Ichsani et al (2021) found that capital adequacy had a direct effect on profitability. They also differ with those of Irawati et al (2019) who found an insignificant effect.

Liquidity exhibited a significant negative regression coefficient. This indicates that liquidity had a negative effect on profitability of commercial banks. These findings are the same as those of Matar and Eneizan (2018) who established that liquidity had a negative effect on profitability. However, they are different from findings of Hasanudin et al (2020) and Abubakar et al (2018) established a positive effect.

Firm size, from the regression model, had a positive regression coefficient. This shows that firm size had a positive effect on profitability of commercial banks. Hence, firm size in terms of assets would increase profitability of commercial banks. The findings are the same as Opeyemi (2019) who established that firm size had a positive effect on profitability. However, the findings differed with the findings of Ozcan, Unal and Yener (2017) who established no effect as well as those of Kumar and Kaur (2016) who found a negative effect.

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### 5.1 Introduction

In this chapter, the researcher summarizes the findings, made conclusions and made recommendations based on the findings. The chapter also gave the limitations faced in the research.

#### 5.2 Summary of Findings

From descriptive statistics, in the period linking 2016 and 2020, profitability measured by return on assets had a mean value of 0.2528% linking 2016 and 2020. This indicates low profitability levels among commercial banks in Kenya as Hargrave (2022) recommends a return on assets of greater than 5%. From the regression model summary, the model had an R squared (linking) of 0.2581 indicating that NPLs, capital adequacy, liquidity and firm size were not the major factors influencing profitability of commercial banks.

Non-performing loans had an average value of 48.1374% for the period linking 2016 and 2020. Espinoza and (2010) indicates that NPLs above 6% is assumed to be high. Hence, the NPLs for Kenyan banks is high. From the regression analysis, where the predictors don't change the commercial banks would show a negative return on assets. In addition, NPLs had a regression coefficient that was insignificant. This shows increase in NPLs would increase profitability of commercial banks insignificantly.

Within the period linking 2016 and 2020, capital adequacy averaged at 32.9% greater than the minimum requirements of 10.5% under Basel III. This indicates that commercial banks had a high capital adequacy hence would have better chances of surviving a financial downturn. Further, capital adequacy exhibited a significant negative regression coefficient. This shows that increase in capital adequacy would decrease profitability of commercial banks. The regression coefficient was significant. This indicates that capital adequacy had a negative effect on profitability of commercial banks.

Liquidity exhibited a mean of 21.5635% for the period linking 2016 and 2020 indicating that the banks had given only 21% of their deposits as loans. Liquidity exhibited a negative regression coefficient against profitability. This indicates that increase in liquidity would decrease

profitability of commercial banks. The regression coefficient was significant. Therefore, liquidity had a positive effect on profitability of commercial banks.

Firm size exhibited a mean of 10.6478% in the period linking 2016 and 2020. This indicates that commercial banks in Kenya have experienced a 10% increase in size in terms of total assets. Firm size had a positive regression coefficient against profitability. This indicates that increase in firm size in terms of assets would increase profitability of commercial banks. The regression coefficient was significant indicating that firm size had a positive effect on profitability of commercial banks.

### **5.3 Conclusions**

From descriptive statistics, the study found that profitability as measured by return on assets was 0.2528%. The study concludes that commercial banks in Kenya have low profitability levels. The study also concludes that NPLs, capital adequacy, liquidity and firm size are not the major factors influencing profitability of commercial banks. This means that there are other factors influencing profitability of commercial banks in Kenya.

Non-performing loans had an average value of 48.1374%. This indicates that 48% of the gross loans of commercial banks in Kenya are non-performing loans. the study concludes that commercial banks in Kenya have a high level of non-performing loans. This indicates that commercial banks in Kenya bear a greater risk of loss if they fail to recover the owed amounts. In addition, NPLs had a positive regression coefficient that was insignificant. The study concludes that NPLs has an insignificant effect on profitability of commercial banks in Kenya.

The study concludes that commercial banks in Kenya have a high capital adequacy hence would have better chances of surviving a financial downturn. Regression analysis exhibited that capital adequacy had a significant negative regression coefficient. Hence, the study concludes that capital adequacy has a negative effect on profitability of commercial banks in Kenya. This means that increase in capital adequacy would decrease profitability of commercial banks in Kenya.

Liquidity exhibited a mean of 21.6%. This study concludes that commercial banks have given less than 25% of their deposits as loans to borrowers. From the regression analysis, liquidity had a negative significant regression coefficient. Therefore, the study concludes that liquidity has a positive effect on profitability of commercial banks in Kenya. This indicates that increase in liquidity would decrease profitability of commercial banks in Kenya.

Firm size exhibited a mean of 10.6478%. The study concludes that commercial banks in Kenya have experienced an increase in size in the recent years. From regression analysis, firm size had a positive regression coefficient against profitability. The study concludes that firm size has a positive effect on profitability of commercial banks. This means that when commercial banks in Kenya increase their firm size in terms of assets they would experience increased profitability in terms of return on assets.

#### **5.4 Policy Recommendations**

From descriptive statistics, the study concludes that commercial banks in Kenya have low profitability levels. There is need for the commercial banks to increase their profitability by increasing the return on assets among the banks. The study recommends that commercial banks in Kenya boost their profit margin and use their assets efficiently to increase sales.

The study concluded that commercial banks in Kenya have a high level of non-performing loans increasing credit risk. There is need for commercial banks in Kenya to reduce NPLs. The study further concludes that NPLs has an insignificant positive effect on profitability of commercial banks in Kenya. The study recommends that commercial banks in Kenya should improve their loan recovery strategies which would increase the recovered loans at a lower cost. This would reduce the costs and increase the income levels which would in turn increase profitability levels.

The study concludes that commercial banks in Kenya have a high capital adequacy hence would have better chances of surviving a financial downturn. However, regression analysis exhibited that capital adequacy has a negative effect on profitability of commercial banks in Kenya. This means that increase in capital adequacy would decrease profitability of commercial banks in Kenya. The study recommends that commercial banks in Kenya need to increase their total deposits level which would reduce the capital adequacy. This would in turn increase return on assets hence improved profitability.

This study concludes that commercial banks in Kenya have 21% of deposits as loans to borrowers. This study recommends that commercial banks in Kenya increase the value of loans which would increase the liquidity among the banks. From the regression analysis, liquidity has a positive effect on profitability of commercial banks in Kenya. This creates the need for the commercial banks in Kenya need to increase their liquidity levels for them to experience increased profitability levels. This can be done by increasing the percentage of deposits issued as loans within the banks.



From regression analysis, firm size has a positive effect on profitability of commercial banks. This means that if commercial banks in Kenya increase their firm size in terms of assets profitability in would in turn increase. This means that increasing the firm size should be a key strategy that commercial banks in Kenya adopt in an attempt to increase their profits. This can be done by increasing the asset levels. The commercial banks also need to increase the efficiency of the assets to increase the positive contribution to profitability.

### **5.5 Limitations of the Study**

This study experienced various limitations. This study was limited to the variables of NPL and profitability. This means that other factors influencing profitability other than those in the study are not considered. The study was limited to commercial banks assuming other financial institutions which may be experiencing problems of profitability in Kenya. The study was also limited by the historical nature of secondary data between 2016 and 2020. This could make the study not give the current status of the parameters. To overcome this, the study adopted the most current data.

### **5.6 Recommendations for Future Studies**

This study was limited by the variables adopted in the research. This study was based on NPL and profitability. Similar studies should focus on other factors like asset quality influencing profitability of commercial banks. The study focused on commercial banks assuming other financial institutions. Hence, similar studies should be done based on other financial institutions like microfinance banks to compare the results. The study was limited by the annual panel data that was adopted in the research. This study recommends research based on quarterly data for different periods like 10 years or 20 years. The studies also can use cross-sectional data to analyze the effect of NPL on profitability.

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## APPENDICES

### Appendix I: List of Commercial Banks in Kenya

1. ABC Bank
2. Absa Bank Kenya
3. Access Bank Kenya
4. Bank of Africa
5. Bank of Baroda
6. Bank of India
7. Citibank
8. Consolidated Bank of Kenya
9. Cooperative Bank of Kenya
10. Credit Bank
11. Development Bank of Kenya
12. Diamond Trust Bank
13. Dubai Islamic Bank
14. Ecobank Kenya
15. Equity Bank Kenya
16. Family Bank
17. First Community Bank
18. Guaranty Trust Bank Kenya
19. Guardian Bank
20. Gulf African Bank
21. Habib Bank AG Zurich
22. Housing Finance Company of Kenya
23. I&M Bank
24. Kingdom Bank Limited
25. Kenya Commercial Bank
26. Mayfair Bank
27. Middle East Bank Kenya
28. M Oriental Bank

29. National Bank of Kenya
30. NCBA Bank Kenya
31. Paramount Universal Bank
32. Prime Bank (Kenya)
33. SBM Bank Kenya
34. Sidian Bank
35. Spire Bank
36. Stanbic Holdings Plc
37. Standard Chartered Kenya
38. United Bank for Africa
39. Victoria Commercial Bank

Source: Central Bank of Kenya (2021)

**Appendix II: Data Collection Schedule**

| Year | Shareholders<br>Capital | Total Assets | Gross Loans<br>Outstanding | Non-performing<br>loans | Total<br>Deposits | Profit after tax |
|------|-------------------------|--------------|----------------------------|-------------------------|-------------------|------------------|
|      | Kshs. '000              | Kshs. '000   | Kshs. '000                 | Kshs. '000              | Kshs. '000        | Kshs. '000       |
| 2016 |                         |              |                            |                         |                   |                  |
| 2017 |                         |              |                            |                         |                   |                  |
| 2018 |                         |              |                            |                         |                   |                  |
| 2019 |                         |              |                            |                         |                   |                  |
| 2020 |                         |              |                            |                         |                   |                  |

### Appendix III: Research Data

| Bank                            | Year | Net profit | Total assets | Total loans | Total deposits | Non-performing loans | Shareholders Capital |
|---------------------------------|------|------------|--------------|-------------|----------------|----------------------|----------------------|
|                                 |      | Ksh. M     | Ksh. M       | Ksh. M      | Ksh. M         | Ksh. M               | Ksh. M               |
| Absa Bank Kenya Plc             | 2016 | 10,440.000 | 259,498.220  | 176,349.000 | 186,598.230    | 11,472.000           | 42,095.000           |
|                                 | 2017 | 6,679.573  | 271,682.000  | 156,843.000 | 189,305.000    | 2,666.000            | 44,584.000           |
|                                 | 2018 | 10,250.070 | 325,363.000  | 186,984.000 | 213,033.000    | 13,910.000           | 43,393.000           |
|                                 | 2019 | 11,857.470 | 374,109.200  | 244,395.000 | 242,375.000    | 13,519.000           | 44,079.000           |
|                                 | 2020 | 8,300.000  | 377,936.000  | 229,677.000 | 253,630.000    | 17,099.000           | 44,969.000           |
| Access Bank Plc                 | 2016 | -2,889.000 | 5,261.000    | 5,329.000   | 3,996.060      | 158.000              | 7,307.000            |
|                                 | 2017 | -164.690   | 2,610.000    | 291.000     | 1,285.000      | 251.000              | 6,439.000            |
|                                 | 2018 | -873.320   | 10,236.000   | 3,465.000   | 8,083.000      | 442.000              | 1,929.000            |
|                                 | 2019 | -2,929.680 | 43,996.120   | 4,606.000   | 4,553.000      | 883.000              | -552.000             |
|                                 | 2020 | -2,010.000 | 10,147.000   | 3,178.000   | 7,826.000      | 1,295.000            | 1,413.000            |
| African Banking Corporation Ltd | 2016 | 493.000    | 20,875.500   | 111,286.000 | 16,078.450     | 12,650.000           | 2,454.000            |
|                                 | 2017 | 367.690    | 19,302.000   | 6,867.000   | 20,104.000     | 13,265.000           | 1,709.000            |
|                                 | 2018 | 209.560    | 27,213.000   | 14,108.000  | 21,974.000     | 2,942.000            | 3,557.000            |
|                                 | 2019 | 243.350    | 75,377.850   | 20,115.000  | 27,818.000     | 3,258.000            | 3,689.000            |
|                                 | 2020 | 147.000    | 32,643.000   | 20,409.000  | 21,749.000     | 2,337.000            | 3,816.000            |
| Bank of Africa (K) Ltd          | 2016 | -101.000   | 9,426.930    | 57,975.000  | 8,000.000      | 7,015.000            | 1,192.000            |
|                                 | 2017 | -121.680   | 6,505.000    | 26,430.000  | 6,822.000      | 3,917.000            | 3,447.000            |
|                                 | 2018 | -383.400   | 6,857.000    | 3,064.000   | 5,615.000      | 1,227.000            | 1,020.000            |
|                                 | 2019 | -516.910   | 11,865.610   | 7,000.000   | 6,512.000      | 870.000              | 2,009.000            |
|                                 | 2020 | -680.000   | 44,917.000   | 7,639.000   | 27,977.000     | 790.000              | 1,911.000            |
|                                 | 2016 | 6,910.000  | 82,907.480   | 4,339.000   | 104,160.200    | 816.000              | 30,238.000           |



|                                    |      |            |             |             |             |            |            |
|------------------------------------|------|------------|-------------|-------------|-------------|------------|------------|
| Bank of Baroda (Kenya) Limited     | 2017 | 4,892.900  | 96,132.000  | 68,153.000  | 77,694.000  | 27,658.000 | 20,177.000 |
|                                    | 2018 | 5,643.030  | 123,014.000 | 133,166.000 | 102,007.000 | 21,661.000 | 20,415.000 |
|                                    | 2019 | 5,466.200  | 143,311.340 | 152,807.000 | 221,038.000 | 20,058.000 | 22,943.000 |
|                                    | 2020 | 5,791.000  | 166,313.000 | 152,711.000 | 135,000.000 | 22,337.000 | 26,677.000 |
| Bank of India                      | 2016 | 3,876.000  | 69,432.370  | 5,582.000   | 62,485.520  | 856.000    | 14,225.000 |
|                                    | 2017 | 2,345.000  | 76,438.000  | 5,680.000   | 100,165.000 | 592.000    | 17,900.000 |
|                                    | 2018 | 2,088.480  | 85,639.000  | 43,439.000  | 57,761.000  | 3,903.000  | 19,410.000 |
|                                    | 2019 | 2,798.620  | 62,543.240  | 54,389.000  | 97,079.000  | 4,126.000  | 19,047.000 |
|                                    | 2020 | 2,733.000  | 75,129.000  | 51,151.000  | 9,224.000   | 6,342.000  | 11,936.000 |
| Citibank N.A. Kenya                | 2016 | 6,033.000  | 103,323.540 | 40,170.000  | 103,740.630 | 1,855.000  | 19,629.000 |
|                                    | 2017 | 4,682.000  | 98,232.000  | 7,741.000   | 65,461.000  | 809.000    | 28,938.000 |
|                                    | 2018 | 5,159.080  | 98,534.000  | 66,123.000  | 71,467.000  | 31,461.000 | 23,039.000 |
|                                    | 2019 | 5,646.510  | 96,570.190  | 144,483.000 | 119,341.000 | 25,175.000 | 24,455.000 |
|                                    | 2020 | 5,480.000  | 106,454.000 | 74,774.000  | 48,874.000  | 26,438.000 | 22,134.000 |
| Consolidated Bank of Kenya Limited | 2016 | -16.000    | 10,464.500  | 128,266.000 | 8,215.360   | 5,520.000  | 8,418.000  |
|                                    | 2017 | 21.590     | 9,541.000   | 235.000     | 6,842.000   | 11,901.000 | 1,607.000  |
|                                    | 2018 | -307.400   | 9,887.000   | 6,172.000   | 8,126.000   | 1,069.000  | 1,687.000  |
|                                    | 2019 | -365.880   | 8,652.480   | 7,313.000   | 8,479.000   | 1,263.000  | 1,778.000  |
|                                    | 2020 | -262.000   | 12,886.000  | 7,883.000   | 6,094.000   | 1,346.000  | 2,847.000  |
| Co-operative Bank of Kenya Ltd     | 2016 | 18,024.000 | 349,997.760 | 241,395.000 | 277,274.670 | 11,273.000 | 60,046.000 |
|                                    | 2017 | 15,890.500 | 382,830.000 | 139,406.000 | 285,990.000 | 17,621.000 | 61,906.000 |
|                                    | 2018 | 17,586.760 | 408,304.000 | 257,566.000 | 304,593.000 | 28,953.000 | 60,587.000 |
|                                    | 2019 | 20,326.060 | 449,616.470 | 281,516.000 | 330,113.000 | 31,156.000 | 77,088.000 |
|                                    | 2020 | 16,961.000 | 496,823.000 | 355,630.000 | 370,085.000 | 42,825.000 | 85,597.000 |
|                                    | 2016 | 62.000     | 13,802.500  | 9,926.000   | 12,313.030  | 787.000    | 3,869.000  |

|                                  |      |            |             |             |             |            |            |
|----------------------------------|------|------------|-------------|-------------|-------------|------------|------------|
| Credit Bank Ltd                  | 2017 | 28.900     | 10,295.000  | 6,680.000   | 7,463.000   | 17,669.000 | 2,162.000  |
|                                  | 2018 | 6.820      | 10,515.000  | 10,027.000  | 7,405.000   | 2,539.000  | 3,065.000  |
|                                  | 2019 | 59.630     | 8,466.280   | 9,801.000   | 13,600.000  | 2,632.000  | 2,242.000  |
|                                  | 2020 | 8.000      | 23,145.000  | 10,130.000  | 88,548.000  | 2,436.000  | 4,121.000  |
| Development Bank of Kenya Ltd    | 2016 | 95.000     | 13,917.900  | 13,124.000  | 12,655.460  | 127.000    | 2,903.000  |
|                                  | 2017 | 4.790      | 10,577.000  | 10,710.000  | 5,612.000   | 1,122.000  | 8,468.000  |
|                                  | 2018 | 2.540      | 15,323.000  | 10,031.000  | 6,822.000   | 2,879.000  | 2,871.000  |
|                                  | 2019 | 64.450     | 12,393.780  | 9,892.000   | 6,029.000   | 3,341.000  | 3,950.000  |
|                                  | 2020 | 19.000     | 17,222.000  | 10,149.000  | 9,265.000   | 3,420.000  | 2,834.000  |
| Diamond Trust Bank Kenya Limited | 2016 | 5,926.000  | 244,123.820 | 72,842.000  | 96,966.520  | 29,987.000 | 30,288.000 |
|                                  | 2017 | 3,682.120  | 109,942.000 | 38,080.000  | 209,254.000 | 1,724.000  | 33,051.000 |
|                                  | 2018 | 2,447.910  | 115,143.000 | 47,023.000  | 105,244.000 | 8,138.000  | 6,936.000  |
|                                  | 2019 | 9,279.310  | 287,250.600 | 60,677.000  | 81,345.000  | 8,244.000  | 11,705.000 |
|                                  | 2020 | 3,942.000  | 312,189.000 | 63,111.000  | 79,193.000  | 9,391.000  | 54,032.000 |
| DIB Bank Kenya Ltd               | 2016 | -277.000   | 5,601.280   | 15,864.000  | 6,936.720   | 1,617.000  | 1,403.000  |
|                                  | 2017 | -179.690   | 5,121.000   | 46,928.000  | 4,194.000   | 2,596.000  | 3,454.000  |
|                                  | 2018 | -395.280   | 5,251.000   | 6,109.000   | 3,198.000   | 2,686.000  | 1,945.000  |
|                                  | 2019 | -795.130   | 8,987.920   | 6,153.000   | 7,138.000   | 2,632.000  | 1,156.000  |
|                                  | 2020 | -693.000   | 13,263.000  | 3,827.000   | 10,149.000  | 2,711.000  | 1,274.000  |
| Ecobank Kenya Ltd                | 2016 | 50.000     | 12,508.030  | 104,302.000 | 9,491.800   | 5,072.000  | 2,143.000  |
|                                  | 2017 | -67.000    | 13,456.000  | 43,943.000  | 7,950.000   | 2,310.000  | 1,162.000  |
|                                  | 2018 | -267.650   | 10,236.000  | 8,018.000   | 5,261.000   | 773.000    | 1,641.000  |
|                                  | 2019 | -23.490    | 57,083.280  | 8,929.000   | 9,188.000   | 1,411.000  | 3,043.000  |
|                                  | 2020 | 6.000      | 94,428.000  | 7,742.000   | 56,033.000  | 1,812.000  | 3,071.000  |
|                                  | 2016 | 22,778.000 | 379,749.000 | 221,039.000 | 259,471.750 | 15,457.000 | 52,341.000 |

|                          |      |            |             |             |             |            |            |
|--------------------------|------|------------|-------------|-------------|-------------|------------|------------|
| Equity Bank Kenya Ltd    | 2017 | 24,000.000 | 406,402.000 | 221,698.000 | 298,703.000 | 12,615.000 | 68,227.000 |
|                          | 2018 | 24,382.340 | 438,509.000 | 231,026.000 | 341,782.000 | 17,064.000 | 68,319.000 |
|                          | 2019 | 25,973.660 | 507,525.240 | 290,564.000 | 381,138.000 | 26,185.000 | 69,914.000 |
|                          | 2020 | 14,207.000 | 667,650.000 | 307,324.000 | 502,423.000 | 51,781.000 | 86,697.000 |
| Family Bank Ltd.         | 2016 | 2,185.000  | 65,338.220  | 54,624.000  | 41,473.320  | 6,193.000  | 9,536.000  |
|                          | 2017 | 652.790    | 56,631.000  | 118,459.000 | 47,627.000  | 10,571.000 | 14,338.000 |
|                          | 2018 | 587.500    | 66,910.000  | 38,188.000  | 48,806.000  | 2,821.000  | 11,426.000 |
|                          | 2019 | 1,352.240  | 78,857.130  | 45,822.000  | 58,332.000  | 4,555.000  | 15,532.000 |
|                          | 2020 | 1,326.000  | 90,591.000  | 44,531.000  | 6,202.000   | 4,838.000  | 17,853.000 |
| First Community Bank Ltd | 2016 | 601.000    | 22,403.480  | 15,538.000  | 21,754.940  | 2,840.000  | 3,077.000  |
|                          | 2017 | 542.000    | 24,804.000  | 21,456.000  | 18,886.000  | 10,359.000 | 2,375.000  |
|                          | 2018 | 292.200    | 25,323.000  | 18,620.000  | 16,760.000  | 4,232.000  | 8,453.000  |
|                          | 2019 | 250.550    | 16,386.450  | 22,546.000  | 18,932.000  | 3,556.700  | 4,635.000  |
|                          | 2020 | 238.000    | 21,947.000  | 21,961.000  | 29,972.000  | 3,425.000  | 5,029.000  |
| Guaranty Trust Bank Ltd  | 2016 | 754.000    | 47,123.840  | 10,155.000  | 34,463.710  | 2,038.000  | 4,376.000  |
|                          | 2017 | 581.790    | 54,191.000  | 7,232.000   | 45,856.000  | 1,595.000  | 2,842.000  |
|                          | 2018 | 359.040    | 54,464.000  | 23,616.000  | 47,188.000  | 2,572.000  | 6,408.000  |
|                          | 2019 | 668.560    | 36,072.410  | 27,068.000  | 50,573.000  | 3,613.000  | 9,152.000  |
|                          | 2020 | 493.000    | 31,267.000  | 22,928.000  | 70,125.000  | 4,028.000  | 8,247.000  |
| Guardian Bank Limited    | 2016 | 160.000    | 15,724.250  | 6,485.000   | 5,788.510   | 778.000    | 2,073.000  |
|                          | 2017 | 144.800    | 14,465.000  | 18,887.000  | 14,783.000  | 2,106.000  | 1,760.000  |
|                          | 2018 | 136.260    | 16,186.000  | 10,691.000  | 13,336.000  | 4,940.000  | 2,557.000  |
|                          | 2019 | 105.580    | 16,088.320  | 13,608.000  | 17,347.000  | 4,699.000  | 2,741.000  |
|                          | 2020 | 77.000     | 16,858.000  | 14,572.000  | 9,523.000   | 5,258.000  | 2,051.000  |
|                          | 2016 | 796.000    | 47,815.080  | 41,075.000  | 49,312.800  | 10,794.000 | 5,060.000  |

|                       |      |            |             |             |             |            |             |
|-----------------------|------|------------|-------------|-------------|-------------|------------|-------------|
| Gulf African Bank Ltd | 2017 | 608.100    | 53,456.000  | 22,091.000  | 36,981.000  | 877.000    | 7,048.000   |
|                       | 2018 | 419.880    | 57,083.000  | 27,255.000  | 35,445.000  | 819.000    | 9,165.000   |
|                       | 2019 | 1,136.820  | 15,358.070  | 27,226.000  | 66,321.000  | 1,116.000  | 7,877.000   |
|                       | 2020 | 559.000    | 37,653.000  | 39,726.000  | 80,233.000  | 1,120.000  | 8,871.000   |
| Habib Bank AG Zurich  | 2016 | 633.000    | 27,156.260  | 7,339.000   | 32,242.990  | 891.000    | 12,619.000  |
|                       | 2017 | 725.791    | 31,316.000  | 8,718.000   | 12,312.000  | 1,091.000  | 4,419.000   |
|                       | 2018 | 332.210    | 32,337.000  | 14,733.000  | 24,339.000  | 3,192.000  | 5,963.000   |
|                       | 2019 | 385.270    | 24,823.460  | 24,542.000  | 33,329.000  | 4,783.000  | 6,356.000   |
|                       | 2020 | 451.000    | 27,212.000  | 26,884.000  | 21,314.000  | 4,377.000  | 9,189.000   |
| HFC Ltd               | 2016 | -490.000   | 5,233.520   | 11,532.000  | 7,667.900   | 3,853.000  | 3,590.000   |
|                       | 2017 | -240.810   | 3,548.000   | 20,144.000  | 3,908.000   | 14,758.000 | 1,269.000   |
|                       | 2018 | -562.070   | 5,361.000   | 2,132.000   | 4,147.000   | 154.000    | 1,158.000   |
|                       | 2019 | -821.250   | 112,028.750 | 5,114.000   | 7,293.000   | 50.000     | 1,040.000   |
|                       | 2020 | -963.000   | 54,478.000  | 8,789.000   | 40,006.000  | 125.000    | 1,346.000   |
| I & M Bank Ltd        | 2016 | 12,764.000 | 164,116.120 | 132,497.000 | 178,447.780 | 15,038.000 | 43,905.000  |
|                       | 2017 | 5,487.505  | 183,953.000 | 126,983.000 | 134,247.000 | 435.000    | 43,559.000  |
|                       | 2018 | 8,725.330  | 229,161.000 | 118,271.000 | 177,250.000 | 9,271.000  | 38,339.000  |
|                       | 2019 | 12,012.340 | 254,252.170 | 281,516.000 | 195,841.000 | 30,516.000 | 47,015.000  |
|                       | 2020 | 10,289.000 | 283,569.000 | 259,698.000 | 218,153.000 | 35,995.000 | 52,324.000  |
| KCB Bank Kenya Ltd    | 2016 | 28,482.000 | 504,777.670 | 373,031.000 | 386,611.000 | 28,333.000 | 80,990.000  |
|                       | 2017 | 19,235.289 | 555,630.000 | 411,666.000 | 445,398.000 | 34,182.000 | 88,991.000  |
|                       | 2018 | 31,384.940 | 621,723.000 | 434,361.000 | 486,613.000 | 30,012.000 | 97,789.000  |
|                       | 2019 | 33,183.950 | 674,301.720 | 468,258.000 | 536,830.000 | 34,786.000 | 92,608.000  |
|                       | 2020 | 23,586.000 | 758,345.000 | 544,837.000 | 591,067.000 | 66,810.000 | 111,271.000 |
|                       | 2016 | -41.000    | 9,920.250   | 13,317.000  | 9,135.300   | 2,459.000  | 1,557.000   |

|                                      |      |           |             |             |            |           |            |
|--------------------------------------|------|-----------|-------------|-------------|------------|-----------|------------|
| Mayfair CIB<br>Bank Ltd              | 2017 | -351.090  | 5,637.000   | 12,330.000  | 7,729.000  | 1,962.000 | 1,068.000  |
|                                      | 2018 | -351.570  | 8,351.000   | 6,451.000   | 4,787.000  | 581.000   | 1,769.000  |
|                                      | 2019 | -453.430  | 6,860.300   | 7,177.000   | 7,100.000  | 787.000   | 1,818.000  |
|                                      | 2020 | -352.000  | 12,729.000  | 6,847.000   | 18,819.000 | 836.000   | 1,837.000  |
| Middle East<br>Bank (K) Ltd          | 2016 | 302.000   | 17,032.990  | 9,389.000   | 15,695.950 | 196.000   | 2,215.000  |
|                                      | 2017 | 249.270   | 18,708.000  | 6,345.000   | 14,140.000 | 8,287.000 | 3,160.000  |
|                                      | 2018 | 168.810   | 25,329.000  | 13,440.000  | 20,525.000 | 1,113.000 | 4,037.000  |
|                                      | 2019 | 218.050   | 35,122.980  | 15,846.000  | 22,981.000 | 1,592.000 | 4,018.000  |
|                                      | 2020 | 105.000   | 11,022.000  | 17,512.000  | 24,649.000 | 2,017.000 | 4,080.000  |
| M-Oriental<br>Commercial<br>Bank Ltd | 2016 | 105.000   | 14,705.350  | 12,826.000  | 8,095.100  | 994.000   | 1,644.000  |
|                                      | 2017 | 71.900    | 12,851.000  | 20,771.000  | 7,665.000  | 17.000    | 2,132.000  |
|                                      | 2018 | 23.650    | 15,332.000  | 9,715.000   | 12,964.000 | 960.000   | 2,174.000  |
|                                      | 2019 | 64.490    | 26,451.640  | 10,766.000  | 16,285.000 | 944.000   | 2,146.000  |
|                                      | 2020 | 43.000    | 12,985.000  | 9,248.000   | 99,229.000 | 1,181.000 | 3,823.000  |
| National Bank<br>of Kenya Ltd        | 2016 | 622.000   | 22,422.350  | 103,535.000 | 16,561.680 | 7,013.000 | 2,965.000  |
|                                      | 2017 | 89.813    | 25,985.000  | 33,589.000  | 26,105.000 | 3,535.000 | 8,609.000  |
|                                      | 2018 | 307.080   | 33,326.000  | 26,255.000  | 26,689.000 | 9,509.000 | 4,468.000  |
|                                      | 2019 | 300.070   | 21,540.740  | 24,118.000  | 27,350.000 | 8,998.000 | 8,808.000  |
|                                      | 2020 | 313.000   | 126,842.000 | 21,850.000  | 13,238.000 | 8,689.000 | 5,419.000  |
| Paramount<br>Bank Ltd                | 2016 | 162.000   | 16,254.020  | 10,400.000  | 11,772.940 | 1,322.000 | 10,996.000 |
|                                      | 2017 | 71.790    | 17,360.000  | 13,746.000  | 13,120.000 | 778.000   | 3,028.000  |
|                                      | 2018 | 150.790   | 17,805.000  | 19,153.000  | 14,392.000 | 1,347.000 | 2,863.000  |
|                                      | 2019 | 164.260   | 28,680.490  | 14,872.000  | 20,532.000 | 1,212.000 | 3,000.000  |
|                                      | 2020 | 97.000    | 11,378.000  | 20,980.000  | 8,069.000  | 996.000   | 3,218.000  |
|                                      | 2016 | 2,336.000 | 68,084.930  | 27,683.000  | 64,873.600 | 805.000   | 10,834.000 |

|                        |      |            |             |             |             |            |            |
|------------------------|------|------------|-------------|-------------|-------------|------------|------------|
| Prime Bank Ltd         | 2017 | 1,462.010  | 69,051.000  | 3,242.000   | 58,951.000  | 1,438.000  | 11,625.000 |
|                        | 2018 | 955.730    | 62,689.000  | 49,215.000  | 49,256.000  | 13,334.000 | 13,191.000 |
|                        | 2019 | 2,456.500  | 108,785.530 | 49,335.000  | 65,335.000  | 12,316.000 | 12,408.000 |
|                        | 2020 | 1,849.000  | 116,204.000 | 41,836.000  | 17,638.000  | 10,799.000 | 13,162.000 |
| SBM Bank Kenya Ltd     | 2016 | 1,445.000  | 55,995.670  | 4,009.000   | 38,155.860  | 1,193.000  | 9,775.000  |
|                        | 2017 | 1,095.000  | 62,127.000  | 20,010.000  | 44,825.000  | 11,209.000 | 5,612.000  |
|                        | 2018 | 565.100    | 70,648.000  | 23,602.000  | 51,044.000  | 16,311.000 | 6,938.000  |
|                        | 2019 | 1,179.980  | 72,519.360  | 38,932.000  | 46,755.000  | 14,980.000 | 6,568.000  |
|                        | 2020 | 617.000    | 79,190.000  | 36,760.000  | 12,492.000  | 16,225.000 | 7,070.000  |
| Sidian Bank Ltd        | 2016 | 222.000    | 16,418.380  | 30,902.000  | 13,685.090  | 5,359.000  | 2,997.000  |
|                        | 2017 | 171.000    | 15,803.000  | 9,929.000   | 13,808.000  | 2,349.000  | 2,665.000  |
|                        | 2018 | 157.600    | 21,521.000  | 13,342.000  | 16,390.000  | 2,526.000  | 3,039.000  |
|                        | 2019 | 185.480    | 18,762.840  | 15,797.000  | 18,014.000  | 2,747.000  | 3,077.000  |
|                        | 2020 | 104.000    | 33,500.000  | 15,714.000  | 5,081.000   | 3,269.000  | 3,204.000  |
| Spire Bank Limited     | 2016 | -968.000   | 4,671.000   | 2,790.000   | 1,947.360   | 69.000     | 1,817.000  |
|                        | 2017 | -548.900   | 11,148.000  | 10,995.000  | 2,080.000   | 9,478.000  | 11,608.000 |
|                        | 2018 | -98.460    | 9,223.000   | 3,184.000   | 7,090.000   | 603.000    | -1,030.000 |
|                        | 2019 | -1,143.380 | 8,584.540   | 5,067.000   | 4,795.000   | 67.000     | 304.000    |
|                        | 2020 | -1,257.000 | 5,114.000   | 5,056.000   | 4,793.000   | 129.000    | -1,820.000 |
| Stanbic Bank Kenya Ltd | 2016 | 7,593.000  | 204,895.160 | 105,082.000 | 121,989.230 | 7,450.000  | 27,470.000 |
|                        | 2017 | 6,912.679  | 239,408.000 | 135,443.000 | 178,696.000 | 18,714.000 | 31,571.000 |
|                        | 2018 | 8,797.960  | 280,953.000 | 144,434.000 | 212,282.000 | 21,115.000 | 34,591.000 |
|                        | 2019 | 8,239.660  | 292,705.140 | 155,307.000 | 205,516.000 | 18,799.000 | 52,001.000 |
|                        | 2020 | 6,237.000  | 318,986.000 | 160,665.000 | 216,805.000 | 20,178.000 | 41,857.000 |
|                        | 2016 | 8,876.000  | 250,274.110 | 19,354.000  | 169,599.900 | 272.000    | 36,432.000 |

|                                   |      |            |             |             |             |            |            |
|-----------------------------------|------|------------|-------------|-------------|-------------|------------|------------|
| Standard Chartered Bank Kenya Ltd | 2017 | 6,522.664  | 285,125.000 | 107,038.000 | 226,051.000 | 7,798.000  | 43,004.000 |
|                                   | 2018 | 11,433.570 | 281,516.000 | 155,498.000 | 220,784.000 | 16,644.000 | 47,713.000 |
|                                   | 2019 | 12,691.230 | 302,295.900 | 205,304.000 | 236,461.000 | 19,345.000 | 47,222.000 |
|                                   | 2020 | 7,018.000  | 325,873.000 | 176,597.000 | 256,498.000 | 25,038.000 | 50,219.000 |
| UBA Kenya Bank Ltd                | 2016 | 158.000    | 14,962.090  | 10,767.000  | 12,938.390  | 2,141.000  | 2,460.000  |
|                                   | 2017 | 122.000    | 16,320.000  | 10,303.000  | 11,485.000  | 1,421.000  | 2,930.000  |
|                                   | 2018 | 105.310    | 17,880.000  | 9,112.000   | 15,541.000  | 6,344.000  | 1,271.000  |
|                                   | 2019 | 85.640     | 10,443.300  | 11,833.000  | 13,078.000  | 6,083.000  | 1,462.000  |
|                                   | 2020 | 56.000     | 18,743.000  | 8,907.000   | 9,749.000   | 6,787.000  | 2,257.000  |
| Victoria Commercial Bank Limited  | 2016 | 659.000    | 29,619.070  | 7,388.000   | 26,726.390  | 676.000    | 8,366.000  |
|                                   | 2017 | 430.960    | 27,628.000  | 16,371.000  | 33,335.000  | 2,481.000  | 9,963.000  |
|                                   | 2018 | 348.050    | 49,081.000  | 22,810.000  | 30,181.000  | 696.000    | 6,736.000  |
|                                   | 2019 | 491.200    | 29,082.400  | 24,578.000  | 38,004.000  | 1,204.000  | 4,276.000  |
|                                   | 2020 | 480.000    | 37,890.000  | 25,442.000  | 28,286.000  | 1,679.000  | 6,745.000  |

