

**STRATEGIES ADOPTED BY COMMERCIAL BANKS IN KENYA TO ENHANCE  
FINANCIAL PERFORMANCE**

**BY**

**ELIAS K. KARUKU**

**A DISSERTATION SUBMITTED IN PARTIAL FULFILLMENT OF THE  
REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE (FINANCE AND  
ECONOMICS) IN THE SCHOOL OF SCHOOL OF BUSINESS AT KCA  
UNIVERSITY**

**SEPTEMBER 2018**

## DECLARATION

I declare that this dissertation is my original work and has not been previously published or submitted elsewhere for award of a degree. I also declare that this contains no material written or published by other people except where due reference is made, and author duly acknowledged.

Student Name: Elias Karuku

Reg. No.: **16/09274**

Sign: \_\_\_\_\_ Date: \_\_\_\_\_

I do hereby confirm that I have examined the master's dissertation of

**Elias Karuku**

And have approved it for examination

Sign: \_\_\_\_\_ Date: \_\_\_\_\_

**Dr.**

Dissertation Supervisor

## ABSTRACT

The purpose of the study was to examine the strategies applied by commercial banks in Kenya to improve financial performance. This study was informed by interest rate capping which necessitates commercial banks to seek other revenue sources and engage in lean and efficient credit risk management. Specific objectives of the research study were to investigate the influence of administration cost-concentration, credit policies, non-interest income and asset quality on financial performance of commercial banks in Kenya. This research study was based on the effectiveness hypothesis, arbitrage pricing theory, financial leverage model and the symmetric information theory. The researcher used descriptive research methodology. The 42 operational commercial banks in Kenya formed the population of interest in this research study. Data for five years (2013 – 2017) was collected from the audited financial reports of these commercial banks. Secondary data that was utilized to achieve the study objectives was sourced from the Central Bank of Kenya bank supervision reports, the audited financial statements of the commercial banks and the websites of the commercial banks. This research study utilized panel data analysis where information for each of the 42 commercial banks on ROA, administration costs concentration, credit policies, non-interest income, asset quality and bank size was gathered for five years. Stata statistical software was utilized for analysis. Presentation of data from the panel regression analysis was through tables and figures. Study findings show that administration cost-concentration had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.4153$ ;  $p < 0.05$ ). Credit policies had a negative but insignificant effect on financial performance of commercial banks in Kenya ( $\beta = -0.1872$ ;  $p > 0.05$ ). Non-interest income had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.1292$ ;  $p < 0.05$ ). Asset quality had a significant negative effect on financial performance of commercial banks in Kenya ( $\beta = -0.9979$ ;  $p < 0.05$ ). From the study results, the study recommends the following. On administration costs concentration, commercial banks should seek to enhance their efficiency by leveraging on technology and reducing their operations costs. Commercial banks should tighten their credit policies to ensure that only clients with riskiness that is covered by the capped interest rates access loan products from the commercial banks. Commercial banks should seek to perform other intermediation roles to diversify their revenue sources so that they do not rely heavily on the ever-reducing interest income. Lastly, management in commercial banks should be effective in controlling and monitoring credit risk to achieve a higher credit rating.

**Keywords:** Administration cost concentration, Interest rate capping, Asset quality, Credit policies, Non-interest income, Financial performance.

## TABLE OF CONTENTS

|                                                                                |             |
|--------------------------------------------------------------------------------|-------------|
| <b>DECLARATION.....</b>                                                        | <b>ii</b>   |
| <b>ABSTRACT.....</b>                                                           | <b>iii</b>  |
| <b>LIST OF TABLES .....</b>                                                    | <b>vi</b>   |
| <b>LIST OF FIGURES .....</b>                                                   | <b>vii</b>  |
| <b>ACRONYMS AND ABBREVIATIONS.....</b>                                         | <b>viii</b> |
| <b>CHAPTER ONE .....</b>                                                       | <b>1</b>    |
| <b>INTRODUCTION.....</b>                                                       | <b>1</b>    |
| 1.1 Background .....                                                           | 1           |
| 1.2 Statement of the Problem .....                                             | 6           |
| 1.3 Objectives of the Study .....                                              | 7           |
| 1.3.1 General Objective of the Study .....                                     | 7           |
| 1.3.2 Specific Objectives of the Study .....                                   | 7           |
| 1.4 Research questions .....                                                   | 8           |
| 1.5 Significance of the Study .....                                            | 8           |
| 1.6 Scope of the Study.....                                                    | 9           |
| <b>CHAPTER TWO .....</b>                                                       | <b>10</b>   |
| <b>LITERATURE REVIEW .....</b>                                                 | <b>10</b>   |
| 2.1 Introduction .....                                                         | 10          |
| 2.2 Theoretical Review .....                                                   | 10          |
| 2.2.1 <i>Efficiency Hypothesis</i> .....                                       | 10          |
| 2.2.2 <i>Arbitrage Pricing Theory</i> .....                                    | 11          |
| 2.2.3 <i>Financial Leverage Model</i> .....                                    | 12          |
| 2.2.4 <i>Symmetric Information Theory</i> .....                                | 13          |
| 2.3 Empirical Review.....                                                      | 14          |
| 2.3.1 <i>Administration cost-concentration and financial performance</i> ..... | 14          |
| 2.3.2 <i>Credit policies and financial performance</i> .....                   | 16          |
| 2.3.3 <i>Non-interest income and financial performance</i> .....               | 18          |
| 2.3.4 <i>Asset quality and financial performance</i> .....                     | 20          |
| 2.3.5 <i>Bank Size and Financial Performance</i> .....                         | 21          |
| 2.4 Research Gap and Summary of Literature .....                               | 22          |
| 2.5 Conceptual Framework .....                                                 | 23          |
| 2.6 Operationalization of Variables .....                                      | 25          |

|                                                                   |           |
|-------------------------------------------------------------------|-----------|
| <b>RESEARCH METHODOLOGY .....</b>                                 | <b>26</b> |
| 3.1 Introduction .....                                            | 26        |
| 3.2 Research Design.....                                          | 26        |
| 3.3 Target Population .....                                       | 26        |
| 3.4 Sampling and Sampling Procedure .....                         | 27        |
| 3.5 Data Collection Procedure .....                               | 27        |
| 3.6 Data Processing and Analysis .....                            | 28        |
| <b>CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION .....</b> | <b>31</b> |
| 4.1 Introduction .....                                            | 31        |
| 4.2 Exploratory Data Analysis .....                               | 31        |
| 4.3 Diagnostic Tests .....                                        | 33        |
| 4.3.1 Test of Multicollinearity .....                             | 34        |
| 4.3.2 Test of Serial Correlation .....                            | 35        |
| 4.3.3 Hausmann Test .....                                         | 35        |
| 4.3.4 Test of Time Related Fixed Effects .....                    | 36        |
| 4.3.5 Test for Heteroscedasticity .....                           | 36        |
| 4.4 Panel Data Analysis .....                                     | 37        |
| <b>CHAPTER FIVE .....</b>                                         | <b>41</b> |
| <b>SUMMARY, CONCLUSION AND RECOMMENDATIONS .....</b>              | <b>41</b> |
| 5.1 Introduction .....                                            | 41        |
| 5.2 Summary of Findings .....                                     | 41        |
| 5.2 Discussion of Findings .....                                  | 43        |
| 5.3 Conclusion.....                                               | 45        |
| 5.4 Recommendations .....                                         | 46        |
| 5.5 Suggestions for Further Research .....                        | 47        |
| <b>REFERENCES .....</b>                                           | <b>49</b> |
| <b>Appendix: Data Collection Schedule.....</b>                    | <b>52</b> |

## LIST OF TABLES

|                                                                      |    |
|----------------------------------------------------------------------|----|
| Table 1: Operationalization of variables.....                        | 25 |
| Table 2: Correlation Matrix of the Study Variables .....             | 34 |
| Table 3: Test of Multicollinearity using VIF .....                   | 35 |
| Table 4: Wooldridge test to test for serial correlation .....        | 35 |
| Table 5: Hausmann Test .....                                         | 36 |
| Table 6: Test Results for Time Fixed Effects .....                   | 36 |
| Table 7: Result for Heteroscedasticity using modified Wald test..... | 37 |
| Table 8: Descriptive Statistics of the Study Variables.....          | 38 |
| Table 9: Fixed Effects Panel Regression on Total Debt.....           | 39 |

## **LIST OF FIGURES**

|                                                                            |    |
|----------------------------------------------------------------------------|----|
| Figure 1: Conceptual framework .....                                       | 24 |
| Figure 2: Growth Plot of Each Commercial Bank's Financial Performance..... | 32 |
| Figure 3: Overlain Plot of Financial Performance .....                     | 33 |

## **ACRONYMS AND ABBREVIATIONS**

|      |                                          |
|------|------------------------------------------|
| AMFI | Association of Microfinance Institutions |
| BOZ  | Bank of Zambia                           |
| CAPM | Capital Asset Pricing Model              |
| CBD  | Central Business District                |
| CBK  | Central bank of Kenya                    |
| CBR  | Central Bank Rate                        |
| FSIS | Financial Statistics Information System  |
| FSS  | Financial Supervisory Service            |
| MFI  | Microfinance Institution                 |
| NBFI | Non-Bank Financial Institution           |
| NPL  | Non-Performing Loan                      |
| OLS  | Ordinary Least Squares                   |
| ROA  | Return on Assets                         |
| ROE  | Return on Equity                         |
| SME  | Small and Medium Enterprise              |
| SPSS | Statistical Packages for Social Sciences |
| US   | United States                            |
| VIF  | Variance Inflation Indicator             |



# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background**

Capping of interest rates is a monetary policy intervention used by government to control access to credit in the financial sector. There are several reasons why governments may opt to use interest rate caps, most of which are political and economic. Among them might be to support an industry or sector where there is a market failure or in locations where a higher financial resource is required. Market failures generally result from market information asymmetries, moral risks, unfavorable choices or the failure of banks to differentiate between low risk and high-risk clients. Miller (2013) posits that interest rate caps are a beneficial tool to support a sector that the regulatory authorities feel does not get adequate credit. Capping of interest rates has a tendency to distort the market and trigger negative predispositions, financial organizations tend to favor their loaning to low danger clients which in turn leads to ineffectiveness in the monetary intermediation procedure.

In accordance with Ramsey (2013), this discrimination causes a circumstance where those in dire need of funding are shut out of the offered funds because they are considered high risk. Moreover, due to the reduced interest rates and the reduced pool of eligible clients, the interest income of commercial banks is usually adversely affected. Financial organizations can nevertheless still stay profitable in the midst of interest rate capping by venturing into other income sources such as non-funded income in addition to cutting their expenses. Limitations brought by the capping of interest rates might lead into alternative lending by the financial sectors such as providing to the government and in severe cases where the capping may end up being unprofitable, commercial banks may withdraw from specific sectors such as the SME sector, because they cannot cover their costs (Helms & Reille, 2014).

In Japan, the 2006 Act reduced the rate of interest under the Capital Subscription Law from 29.2% to the 20% level (Honda & Kuroki, 2016). Loan providers objected that limiting rates to this level would make the company unprofitable and drive them out of the market. However, figures released by the Financial Services Firm in 2014 showed that the major money lending businesses were borrowing their capital from banks at just 2% whilst lending this onto customers at between 27% and 29%. In addition, each of the four primary lenders had operating earnings of approximately 1 billion yen. However, the interest rate capping led to the reduction in interest income of many medium and small banks.

Many countries in Africa have actually developed ceilings of interest rates to secure consumers from high rates of interest charged by banks. The majority of these ceilings are the action of governments that are dealing with political and cultural pressure from their citizens. The basic concept is that interest rate ceilings restrict the propensity of some financial providers to increase their interest yields especially in markets with a mix of no transparency, limited disclosure requirements and low levels of monetary literacy (Maimbo & Henriquez, 2014). In Zambia, the Bank of Zambia (BOZ) introduced a ceiling on the yearly rate of interest on loans charged by non-bank monetary institutions (NBFI) in 2013. The ceiling mentioned that the maximum effective yearly loaning interest rate for NBFI designated as microfinance service companies by the Bank of Zambia would not exceed 42% and the maximum effective yearly financing rate that will be charged by all other non-bank financial organizations would not go beyond 30%. NBFIs included development banks, microfinance institutions, credit institutions and forex bureaus. Interest rate capping did not work in Zambia and was lifted in November 2015.

The concern of rate of interest capping has actually been introduced severally in Kenya with various outcomes. In 2000, the Donde Bill, aimed to resolve the concern of rates of interest but did not get much support from stakeholders consisting of banks. The draft laws

aimed to have the national government regulate the interest rates charged on loans by banks because the banks had actually made borrowing to be out of reach for the majority of Kenyans. The government, in a memorandum to parliament, nevertheless warned the lawmakers on the risks of managing rate of interest and pointed out that such a stipulation would be against the spirit of the liberalization policy of the Kenyan economy. The bill was not passed. However, in 2015, there were a fresh bill aimed at capping banks' rate of interest which was passed and assented on 24th August 2016. The Bill aimed at modifying article 33A of the Banking Act by introducing article 33B which offers interest rate ceilings. Article 33B (1) (b) of the Banking Amendment Bill set the minimum rates of interest that a bank would pay for a savings deposit at 70% of the base rate set by the Central Bank of Kenya. Moreover, the law indicates that the maximum interest charged on loans should not exceed 400 basis points above the CBR. Obeng and Sakyi (2017) posit that capping of interest rates reduces interest income for banks. This hence calls for the banks to devise innovative strategies to enable them to enhance other revenue sources, reduce costs or enhance their credit risk management to enhance their performance.

The current study hence seeks to explore the strategies adopted by banks to enhance financial performance after interest rate capping in Kenya. This study will hence focus on establishing the difference in strategies before and after interest rate capping. Specifically, the study will focus on the difference in administration cost-concentration, credit policies, non-interest income and asset quality of commercial banks in Kenya before and after interest rate capping. This will indicate how the banks strategically responded to interest rate capping.

### **1.1.1 Strategies Adopted by Banks to Cope with Interest Rate Capping**

The capping of interest rates charged by banks usually leads to lower interest income and hence adversely affecting financial performance of commercial banks. To ensure that

commercial banks continue to be profitable in an interest rate capping regime, they need to innovate and devise strategies to ensure that their profitability is not significantly affected. Miller (2013) notes that commercial banks in interest rate capping regimes resort to cost reduction measures. These include adoption of digital strategies for both loan disbursement and deposit mobilization and retrenchment of staff among others. Other strategies employed include diversifying investments, such as increasing investments in infrastructure bonds, municipal bonds, and Treasury bonds and bills which are less risky compared to loans.

Maimbo and Henriquez (2014) posits that when interest rates are capped, commercial banks seek to cushion or enhance their profitability through increasing their efficiency and cutting on loan origination costs. Commercial banks which have inefficiencies before interest rate capping can still remain profitable by cut initiation costs and improving operational efficiencies. Honda and Kuroki (2016), on the other hand indicate that banks can resort to using analytics to rate and customers and digitizing most of the loan processing process. Most commercial banks still apply the manual decision-making processing of loan processing that require credit committees which is lengthy and expensive. This can be improved by applying advanced analytics models that are automatic, reliable and accessible throughout.

Moreover, Helms and Reille (2014) note that commercial banks need to reduce non-performing loans by use of advanced predictive analytics techniques. These can speed the process of loan approvals by conducting processes in advance of customer requests, require customers to meet a higher credit standard to take loans and move the bank away from risk and towards profitability. Similarly, Ramsey (2013) posits that banks need to reduce their overreliance on interest income and seek more value adding non-interest income sources. Additionally, creating strategic partnerships with non-bank lending institutions to the meet the needs of their customers. By referring customers to other, non-bank lenders with whom the bank forms a partnership, the bank will be able to satisfy their customers. Since non-bank

lenders are not restricted by the cap on interest rates, they can lend to the bank's ineligible customers, meeting customers' needs.

### **1.1.2 Financial Performance**

Different measures can be applied in ascertaining the financial efficiency of an organization. For commercial banks, numerous indicators can be applied that include Return on Assets (ROA), Return on Equity (ROE), dividend yield, operating profit and many others. In this study, indicator applied in assessing profitability of commercial banks was through ROA. Little is talked about ROE due to the close semblance of the two terms. Return on Equity (ROE) is a measure of financial performance by establishing the performance as a ratio between operating earnings of the organization and the equity that shareholders of the organization have invested. This value of shareholder equity is derived from a balance sheet of the company. This for that reason, determines return that the organization has from the focus of the investors. An organization experiencing a high ROE has a capability of adding worth to its investors' value and generating positive cash streams for shareholders. Higher ROE therefore shows a company with high success than another with lower ROE (Khrawish, 2011).

ROA on the other hand illustrates net profit as a percentage of the overall average assets owned by the firm (Khrawish, 2011). This procedure of measuring profitability indicates how well a business is using the assets contributed by equity and debt holders to generate revenue. It is a procedure that indicates to investors in the business, financial institutions and prospective financiers on how well the management of the business is utilizing the assets at the company's disposal to bring in income or returns. It is for that reason, an efficiency measure on how the assets of the organization are being used (Khrawish, 2011). A business with a higher ROA shows that it is more effective than another

company with a lower ROA in asset utilization (Wen, 2010). This research study will apply ROA as the measure of profitability.

## **1.2 Statement of the Problem**

When interest rate caps are introduced, the financial performance and sustainability of commercial banks that rely heavily on interest income is affected (Honda & Kuroki, 2016). Despite this, when interest rate ceilings effected in any economy, most stakeholders focus on the effects such ceilings would have on the end consumer of bank products. Little attention is paid on how interest rate ceilings could affect the financial performance of banks, the market performance of commercial banks and also the general stability in the financial sector (Aligonby, 2016). Capping of interest rates have been documented to result to reduced profitability for financial institutions. It is hence important for commercial banks to have effective strategic responses to deal with interest rate capping.

In Japan, Honda and Kuroki (2016) posit that the 2006 Act that reduced the interest rates under the Capital Subscription Law from 29.2% to the 20% level resulted in most banks reporting reduced earnings in the succeeding years. Only the big banks were able to report consistently high and growing earnings while the medium and small banks mostly reported stagnating or reducing earnings. In Zambia Maimbo and Henriquez (2014) document that the interest rate caps that were introduced in the country in 2013 were suspended in 2015 after resulting in poor performance by financial institutions and reduced access to credit by the economic sector and mostly the SMEs.

Okwany (2017) conducted a study on the effect of interest rate capping on financial performance of commercial banks in Kenya. The study findings indicated that interest rate capping led to reduced credit uptake, reduced bank profitability and led to increase of non-performing loans. Mbua (2017) assessed the effect of interest rates capping on the banks

listed on the Nairobi Securities Exchange (NSE). The study findings revealed that when the interest rate cap was effected, share prices for the commercial banks listed in the NSE dropped significantly and this means that interest rates are a factor that affects the decision to invest in bank shares. Moreover, the study established that the trading volumes reduced after the interest rate cap was effected in September 2016 and most of the shares traded involved a reduction in the number of shares held by investors. Though these studies have linked interest rate capping with bank performance, no study have been able to explore the strategies that banks have devised and their effect on performance. The aim of this research is to fill that empirical gap and investigate the strategies adopted by commercial banks in Kenya to enhance financial performance after interest rate capping

### **1.3 Objectives of the Study**

#### **1.3.1 General Objective of the Study**

The general objective of the study was to investigate the strategies adopted by banks in Kenya to enhance financial performance

#### **1.3.2 Specific Objectives of the Study**

- i) To investigate the effect of administration cost-concentration on financial performance of commercial banks in Kenya
- ii) To assess the effect of credit policies on financial performance of commercial banks in Kenya
- iii) To explore the effect of non-interest income on financial performance of commercial banks in Kenya
- iv) To establish the effect of asset quality on financial performance of commercial banks in Kenya

#### **1.4 Research questions**

The study sought to answer the following research questions;

- i) What is the effect of administration cost-concentration on financial performance of commercial banks in Kenya?
- ii) What is the effect of credit policies on financial performance of commercial banks in Kenya?
- iii) What is the effect of non-interest income on financial performance of commercial banks in Kenya?
- iv) What is the effect of asset quality on financial performance of commercial banks in Kenya?

#### **1.5 Significance of the Study**

The findings from this study will be of worth to investors, management of banks, policy makers and monetary experts. The effect of interest rate capping on performance of commercial banks and the methods that these financial institutions have actually adopted is of interest to investors, analysts, management, and auditors. Investors are presumed to make their investment choices on the basis of their evaluation of strategies that can affect future revenues. Experts advise clients on a variety of valuation matters consisting of financial investments, new issue assessment, and takeover appraisal.

Management is vitally interested in effectiveness of methods embraced and their effect on future revenues for financial and control functions while auditors would take advantage of earnings forecasts in their analytical reviews of client's financial statements. These reasons are part of the motivation for this research study into the strategies that commercial banks have actually embraced to enhance their financial efficiency in the wake of interest rate capping regime.



### **1.6 Scope of the Study**

This study sought to investigate the strategies that commercial banks in Kenya have adopted to enhance their financial performance. The study focused on 42 commercial banks that have been in operation within the period that the study scope focused on. The study sought to focus on administration cost-concentration, credit policies, non-interest income and asset quality. The time scope of the study was five years (2013 – 2017).

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This chapter provides a review of the literature that was relevant to the current study. This comprises of theoretical review, empirical literature, conceptual framework and the operationalization of variables. The theoretical review captures the theories that underlie the study. The empirical review consists of pragmatic literature relevant to strategies adopted by banks to enhance financial performance after interest rate capping. The reviewed empirical studies establish gaps in the literature that the current research intends to fill. Further, the chapter includes a conceptual framework that demonstrates the envisaged relationship between the study variables. Lastly, the chapter provides the operationalization of variables which clearly show how each of the variables in the study will be measured.

#### **2.2 Theoretical Review**

This part comprises of the theories that were used to guide the study. The study was based on the efficiency hypothesis, arbitrage pricing theory, symmetric information theory and the financial leverage model.

##### ***2.2.1 Efficiency Hypothesis***

A theoretical effort to suggest an alternate explanation on the profitability of commercial banks was made by Demsetz (1973) through the Efficiency Hypothesis. The basis of the hypothesis is that higher profits of organizations, such as commercial banks, are not due to their collusive habits but emanate from high performance level, which in turn, causes bigger market shares that banks possess. In other words, success of commercial banks is determined not by the market concentration, but by bank performance (Grygorenko, 2009).

This hypothesis stipulates that a commercial bank which operates more effectively than its competitors gains higher revenues arising from low operational costs. The very same bank holds an essential share of the market. Differences at the level of efficiency develop an unequal distribution of positions within the market and an intense concentration (Mensi & Zouari, 2010). Additionally, Smirlock (1985) performed empirical examination of the Efficiency Hypothesis where they thought about market share as a proxy to effectiveness. In their empirical research study of 2700 banks, Smirlock (1985) had the ability to show that there was no association between market concentration and bank profitability while significant relationship existed between bank profitability and market share. Nevertheless, Rhoades (1985) questioned the conclusion that the favorable relation between market share and success was because of effectiveness. They specified that this pattern may happen because of item diversity and correspondingly, capability of some banks to set higher rates on their services.

This theory was applied to test how efficiency of commercial banks indicated by the administration costs concentration had influenced financial performance of commercial banks. This is because the theory implies that cost efficiency in the commercial bank is one way in which the bank can improve its profitability.

### ***2.2.2 Arbitrage Pricing Theory***

Arbitrage Pricing Theory was originally developed by Roll and Ross (1980). It is an asset prices theory that mentions that the expected investment return of financial assets can be modeled to form a linear connection of different macroeconomic variables. The modification in correlation level is represented by a beta coefficient. Roll and Ross (1980) initiated the Arbitrage Pricing Theory to form an alternative to Capital Asset Pricing Model (CAPM) as an outcome of decreased complete satisfaction of applicability of CAPM on a theoretical and

empirical basis. CAPM is measuring a single connection between expected risk and return, using the beta, and is based upon the effectiveness of mean basic deviation of the marketplace portfolio.

Using the tenets of the arbitrage pricing theory, that the expected return of a financial asset is a linear function of theoretical market indices and various factors, the changes in interest rate policy is expected to influence the proportion of revenue from non-interest sources and hence affect performance of commercial banks. Arbitrage pricing theory is vital to this research study to figure out the connection in between non-interest income and profitability of commercial banks in Kenya as it gave the chance to evaluate if changes in the proportion of earnings coming from non-interest sources affects profitability of the commercial banks. The strict testing of this model by Roll and Ross (1980), Chen, Roll and Ross (1986) as well as Lehmann and Modest (1988) made it viable for this study.

### ***2.2.3 Financial Leverage Model***

Financial leverage model by Wolfe (2010) posits that as banks buy various assets, their portfolio will start to overlap and look gradually alike. A decrease in the value of these assets can cause joint disasters. Wolfe utilized a design with two banks to show that diversity can increase the probability of systematic crises and for that reason it is unfavorable. While focussing more on different property may assist minimize individual bank's risks and improve its performance, it can increase the possibilities of organized crises where most banks fail. The main assumption of this model is that in case of a single default, the bank in financial obligation can sell its assets to the liquid bank and avoid a costly liquidation. Such handovers of resources are not possible when both banks owe money, that makes physical liquidation of the assets unavoidable. This implies the presence of a negative externality

among the banks, which implies that as banks increase their diversification level they intensify the possibility of costly liquidation by the other banks.

In his research study, Wolfe (2010) checks out the diversification-diversity tradeoff in the presence of monetary externalities. In these designs, the expense at which assets are discharged are endogenously determined and are lower when a larger variety of portfolios are liquidated at the same time. Hence, the magnitude of diversity of a bank figures out the liquidation costs of other intermediaries. Since these rates are not affected by the banks, the stability and effective levels of growth do not necessarily match. The ineffectiveness occurs due to the discrepancy of banks' profit incentives and the depositors' welfare. Banks therefore should ensure that they diversify optimally and ensure that the assets that they invest in are quality.

This theory was applied in this study to establish how a mixture of different asset categories by the banks is expected to enhance their asset quality and hence affect the performance of the commercial banks. When interest rate capping is introduced, commercial banks are expected to have strict investment policies to ensure that only high return and quality assets are considered for investment. This hence is expected to enhance the asset quality of the commercial banks and also the financial performance of the commercial banks.

#### ***2.2.4 Symmetric Information Theory***

Derban, Binner and Mullineux (2005) recommended that bank customers should be evaluated particularly by banking institutions in relation to credit assessment. Collection of dependable information from prospective customers becomes important in achieving effective screening as shown by symmetric details theory. Qualitative and quantitative techniques can be utilized in assessing the borrowers although one significant difficulty of utilizing qualitative designs is their subjective nature.

According to Derban and colleagues (2005), customers' qualities assessed through qualitative designs can be appointed numbers with the amount of the worth compared to a limit. This method minimizes processing costs, minimizes subjective judgments and possible biases. The rating system will be crucial if it indicates modifications in anticipated level of credit loan loss. Bridge (1998) posited that quantitative designs make it possible to numerically develop which aspects are very important in describing default risk, examining the relative degree of importance of the elements, improving the rates of default risk, screening out bad loan candidates and determining any reserve required to meet future loan losses.

When interest rate capping is introduced, commercial banks are expected to enhance their information collection for any prospective borrowers and enhance credit policies to reduce non-performing loans. This theory will hence be used to inform how effective credit risk management practices can be used to lower credit risk and hence ensure that loan losses are minimised. This is then expected to enhance the profitability of the bank through increased interest income.

## **2.3 Empirical Review**

This section provides a review of empirical literature relevant to strategies applied by banks to remain profitable in an environment of interest rate capping. The reviewed literature shows a clear linkage between the various variables under study. The hypothesized variables (administration cost-concentration, credit policies, non-interest income and asset quality) are subheadings in this section.

### ***2.3.1 Administration cost-concentration and financial performance***

A research study in Nigeria by Obamuyi (2013) investigated the factors of banks' success in a developing economy that has capped rate of interest. The study was carried out on the

background of unimpressive banks' performance in Nigeria over the preceding years that remained as a source of concern for regulators and all stakeholders. The research study hence investigated the effect of administration expenditure management on monetary efficiency of commercial banks. A regression model was used on the panel data acquired from the financial statements of 20 banks from 2006 to 2012. The findings from the research study suggest that enhanced expenditures management contribute to higher banks' performance and development in Nigeria. These findings indicate that bank management should effectively manage their portfolios in order to protect the long-term interest of profit-making.

Kavwele, Ariemba and Evusa (2018) explored the effect of interest rate capping on the financial performance of commercial banks in Kenya. The variables used for interest rate capping were interest income, administration cost and interest expense while the performance of commercial banks was measured by the total profit before tax and exceptional items. Data was collected for the variables for four quarters of a financial year before the introduction of capping and four quarters of a financial year immediately after the introduction of capping. Multiple linear regression analysis and paired sample T-test was used in the analysis to establish the relationship between the variables and also to establish whether there was any significant difference in profitability between the two periods. Interest rate capping was found to have a statistically significant negative effect on the performance of commercial banks and specifically from interest income whose negative impact could not be compensated by administration cutting by the commercial banks.

Amare (2012) investigated the factors determining profitability of commercial banks in Ethiopia where interest rates were controlled. The primary goal of this research study was to analyze the impact of bank-specific, industry-specific and macroeconomic factors of Ethiopian commercial banking market success from the period running from 2000 to 2011. The research study applied OLS estimate technique to measure the effect of internal and

external determinants of profitability in regard to typical return on assets and net interest margin. The estimation results showed that profitability is influenced by administration and operational cost management among other facts. Banks that were able to control their administration costs were on average more profitable than their counterparts with high administration costs. The study further observed that interest rate policy has significant and positive effect only on interest margin and interest income.

### ***2.3.2 Credit policies and financial performance***

Nduku (2016) carried out a research study that investigated the effect of credit risk management on monetary profitability of commercial banks in Kenya. The goal of the research study was to figure out the impact of credit risk management on financial performance of commercial banks in Kenya by applying a descriptive research methodology. The study duration was five years from 2011 to 2015 and secondary information for forty banks was gathered. The secondary data was examined with the use of a regression model and descriptive statistics. The study revealed that non-performing loans had a negative relationship with ROE. These findings implied that increase in non-performing loans would results to a decrease in profitability of the commercial banks.

The study by Obamuyi (2013) in Nigeria investigated the determinants of banks' profitability in a developing economy that has controlled interest rates. The study established that having effective credit management practices in the banks positively influenced their profitability. These findings are supported by findings from a study by Njoroge (2016) that explored the determinants of profitability of commercial banks in Kenya. The study adopted a descriptive design and used secondary data from 43 registered commercial banks from the years 2011 to 2015. The data collected was analyzed using ordinary least squares (OLS) and



Pearson correlation. The study findings revealed that an increase in nonperforming loans increased credit risk which adversely affected profitability.

Gakure, Ngugi, Ndwiga and Waithaka (2012) investigated the effect of credit risk management strategies on the performance of unsecured bank loans in commercial banks in Kenya. The research study investigated the relationship between various credit risk mitigation techniques used by banks on unsecured loans and the overall bank efficiency. The study investigated the impact of credit risk recognition, credit risk analysis and appraisal, credit risk monitoring and credit approvals/ sanctions on the performance of commercial banks in Kenya. The researcher utilized regression analysis techniques to assess the effect of credit risk management on performance of the commercial banks. The results from the research study show that holding risk identification, risk appraisal and analysis, risk monitoring and credit-approval/sanctions had significant impact on performance of the commercial banks. Banks that used effective credit risk management practices were able to control their NPLs and for this reason positively affecting financial performance.

In a study on deposit taking microfinance institutions, Gatuhu (2011) investigated the impact of credit management on the financial profitability of the microfinance institutions in Kenya. The research study adopted a descriptive research methodology. The population of the research study included 59 MFIs in Kenya that were members of AMFI. A census research approach was utilized to accomplish the research. Primary information was collected using surveys and descriptive data used to evaluate the collected information. The study revealed that credit risk control, customer appraisal and collection policy had reduced the amount of non-performing loans and hence had a favourable result on financial performance of MFIs in Kenya. The study established that there was a strong relationship between financial profitability of MFIs and efficient credit danger management practices such as customer appraisal, credit danger control and collection policy.

### ***2.3.3 Non-interest income and financial performance***

A study in Korea by Baek, Cha and Lee (2015) investigated the effect of the diversification to non-interest income by Korean banks on their profitability. The study analyzed five special banks and thirteen general banks (seven commercial and six local banks) using quarterly income statements from Financial Statistics Information System (FSIS) that was provided by Korean Financial Supervisory Service (FSS). For the empirical test, the study only used active banks as of December 2012 that listed in FSIS system. The data sample period started from 2007 and continued to 2013 when all the active thirteen commercial banks and five special banks appeared. The study applied VaR to evaluate the risk associated with bank's P&L besides Monte Carlo simulation to evaluate bank's interest and non-interest return. To evaluate VaR, the study used Delta-Normal VaR using normal distribution and Cornish-Fisher VaR using the third momentum and fourth momentum for parametric estimation, and Monte Carlo VaR for non-parametric. The study established that due to low interest rate spread in the country after the 1997 Asian bank crisis, Korean banks had intentionally increased the share of noninterest revenue as a vehicle of banking diversification. However, this did not have an effect on financial performance of the banks as it was accompanied with the soaring of net noninterest income expense.

Mutuma and Mungatu (2016) investigated the effects of non-interest income on the aversion of systemic risks and enhancement of profitability of commercial banks in Kenya. The objectives of the study were to establish the effect of foreign exchange trading income, dividend income, deposit, transaction, other account fees and fees and commissions income on loans and advances on the systemic risk and bank profitability. The study adopted descriptive research design and the target population for the study comprised of 42 commercial banks in Kenya. Secondary data was collected using documentary information from Banks annual accounts for the period 2010 to 2014. Data collected was analyzed using a

multiple linear regression model. Results revealed that a strong relationship exist between foreign exchange trading income, divided income, deposit and transaction fee and fees and commissions and systemic risk and profitability of commercial banks.

Oniang'o (2015) studied the impact of non-interest income on profitability of commercial banks in Kenya. The study used a descriptive research methodology with the study population being all the 43 commercial banks in Kenya. Secondary data was gathered from financial records and statements. The secondary information analysis was done utilizing a regression technique. The research findings revealed that non-interest income was positively related to profitability of commercial banks. In addition, the correlation results uncovered that there was a moderate correlation between non-interest earnings and profitability of commercial banks. The limitation of this research study is that it used financial statements which do not offer a complete image of the activities and projection of commercial bank's performance since the financial declarations are historical in nature and may not effectively reflect the real requirements of the researcher. This may have affected the credibility and reliability of information and therefore impact adversely on the findings derived.

DeYoung and Rice (2012) investigated the effect of enhancing noninterest income by commercial banks in US on their financial performance. The study applied panel data analysis techniques with secondary data from 2006 to 2010 focussing on 127 commercial banks in US. The findings from the study shows that noninterest income and financial performance are inter-related. The findings revealed that banks with large proportions of noninterest income have been shown to suffer declines in risk-adjusted performance, *ceteris paribus*. The research study further revealed that noninterest earnings in the research study duration accounted for over 40 percent of operating income in the United States commercial banking industry. Furthermore, the research outcome suggest that well-managed banks

broadened more gradually into noninterest activities, where marginal increases in noninterest earnings were connected with poorer risk-return concessions on average. These findings indicate that noninterest income is co-existing with, rather than replacing, interest income from the intermediation activities that remain banks' core monetary services function.

#### ***2.3.4 Asset quality and financial performance***

Ochieng and Kwasira (2017) assessed the strategic responses to institutional pressures on performance of commercial banks in Nakuru Central Business District, Kenya. The performance of the banking industry in Kenya faces increased institutional pressures. Thus, this study assessed the strategic responses to institutional pressures (coercive, social normative and mimetic) on the performance of commercial banks in Nakuru CBD. A descriptive research design was employed with a target population of 260. Stratified random sampling was adopted to select 72 respondents. CBK regulations and the interest rate capping law were found to affect bank performance (mean 4.15). Commercial banks responded through contemporary practices that included lowering the impairment losses on their assets to ensure high quality for their assets.

In Turkey, Kadioglu, Telceken and Ocal (2017) investigated the influence of asset quality on the earnings and profitability of financial institutions. This study investigated whether asset impairment caused by non-performing loans influenced the financial institution's profitability in Turkey. The research used a panel regression method to the quarterly dataset including 1809 observations belonging to 55 financial institutions in Turkey during the period from first quarter of 2005 to third quarter of 2016. The study findings showed a significant, negative relationship between asset impairment and bank profitability. In the study, bank profitability was measured through return on equity and return on asset.

The study established that higher non-performing loans led to the lower asset quality which in turn led to lower return on equity and return on asset.

Nzioka (2016) explored the effect of assets quality on the financial performance of commercial banks in Kenya. The goal of this research study was to figure out the effect of asset quality on the financial profitability of commercial Banks in Kenya, between the years 2010 and 2014. The asset quality equally referred to as loan quality has actually been defined as the overall risk attached to the numerous assets held by the financial organization. Based on the findings, the study advised that for high asset quality levels to be attained, improved financial investment assets levels and the low rate of non-performing assets are to be realized through credit risk recognition, measurement, tracking and managing.

Alemu (2015) performed a research study in Ethiopia that aimed at examining the factors of commercial banks profitability in regimes of low rate of interest spreads. The research study utilized panel data of eight commercial banks from year 2002 to 2013. The study applied mixed research methodology and secondary financial data was analysed by utilizing multiple linear regressions models for the bank profitability procedure, Return on Assets (ROA). Ordinary least squares regression model was applied to investigate the impact of asset quality among other variables. Primary data was utilized to support the result of the documentary analyses. The findings of the study showed that asset quality had favourable and statistically significant relationship with commercial bank's profitability.

### ***2.3.5 Bank Size and Financial Performance***

Kagecha (2014) investigated whether size played a significant role in financial performance of commercial banks in Kenya. The study used panel data for the period 2007-2014 and used generalized method of moment (GMM) to estimate the effect of size on performance. The empirical findings revealed that size does not significantly influence financial performance

among Kenyan commercial banks. This implies that although scale economies are important for profitability, local markets in Kenya do not always allow such scale economies to translate to higher profitability.

Gatete (2015) interrogated the effect of bank size on profitability of commercial banks in Kenya. The population of the study constituted all the 43 commercial banks in Kenya. The data was gathered from financial statements and records. Data analysis was done using a regression model. The study findings showed that bank size was moderately positively correlated to profitability of commercial banks in Kenya. Further, the study's regression results indicated that log of assets was statistically significant in influencing financial performance of commercial banks.

Aladwan (2015) assessed the impact of bank size on profitability of listed Jordanian commercial banks. Data for the study was collected from Jordanian commercial banks for the years 2007 to 2012. Total assets for the commercial banks and their profitability for these years was collected. The dependent variable was profitability which was measured using ROE. The study applied simple regression analysis where dummy variables were used for categories of the different asset sizes. The study findings revealed a significance difference in the profitability of these different sized banks. These findings implied that bank size is a significant factor in determining its profitability.

## **2.4 Research Gap and Summary of Literature**

The reviewed literature has included the four theories that anchored the study which include the efficiency hypothesis, arbitrage pricing theory, symmetric information theory and the financial leverage model. The literature has also reviewed previous studies on strategies applied by banks to remain profitable in an environment of interest rate capping. The reviewed literature focussed on the various variables under study which included

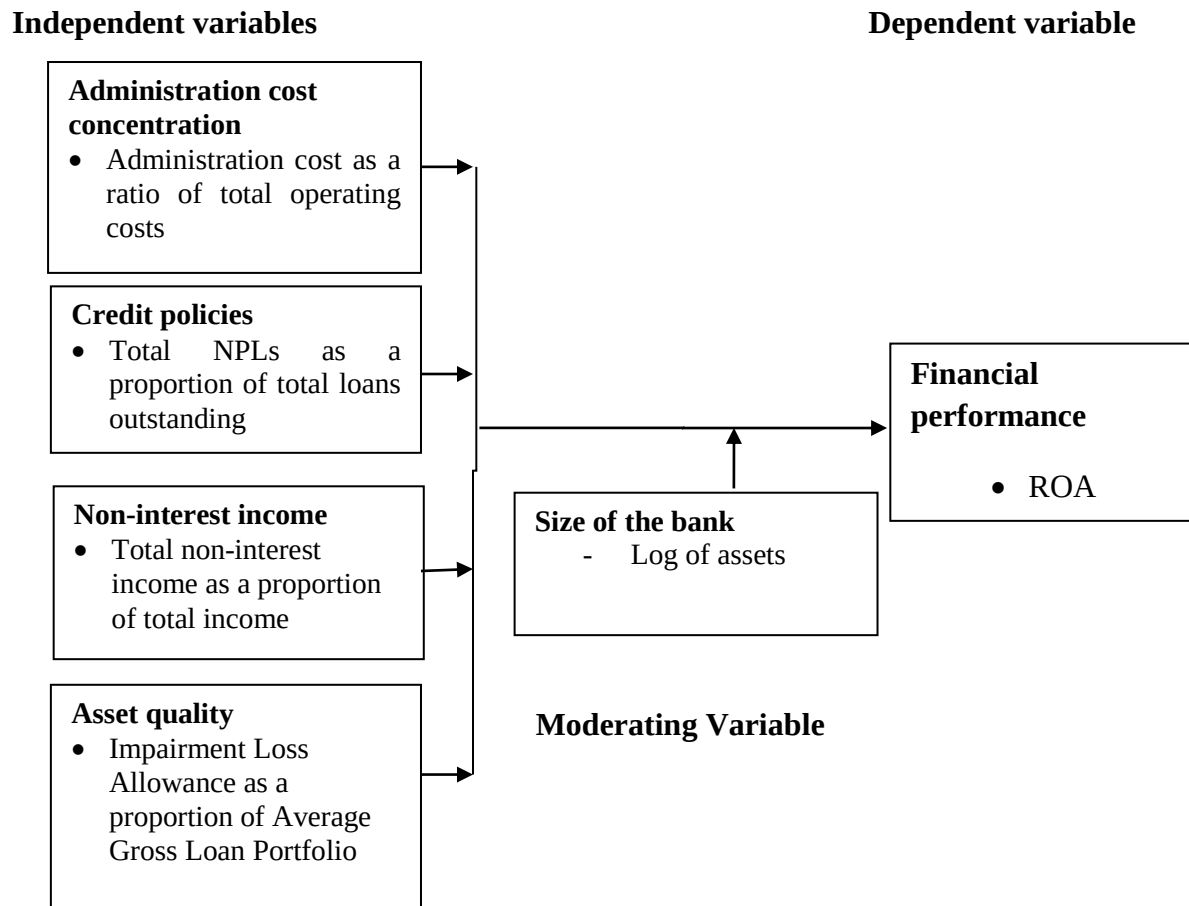
administration cost-concentration, credit policies, non-interest income and asset quality. The review of previous studies provided research gaps that this study seeks to fill. First, most of the studies on strategies applied by commercial banks in an interest rate capping regime have been conducted in contexts dissimilar to Kenya. These include among other studies conducted in Turkey (Kadioglu et al., 2017), Ethiopia (Alemu, 2015), South Korea (Baek et al., 2015) and US (DeYoung & Rice, 2012). This study is hence justified to bridge the gap in the Kenyan context.

Secondly, the studies conducted in Kenya focussed mostly on the effect of interest rate capping on profitability of commercial banks. Specifically, Gakure et al. (2012) investigated the effect of credit risk management techniques on the performance of unsecured bank loans employed commercial banks in Kenya while Nduku (2016) investigated the effect of credit risk management on financial performance of commercial banks in Kenya. This was before the interest rate capping was introduced. Kavwele et al. (2018) interrogated the effect of interest rate capping on the financial performance of commercial banks in Kenya. Though these studies focussed on what could influence financial performance of commercial banks and the effect of interest rate capping on financial performance, they failed to assess the strategic responses the commercial banks had applied in light of the interest rate capping law. This study sought to fill this gap.

## **2.5 Conceptual Framework**

The relationship between the strategies applied by banks in an interest capping regime and their financial performance is a multifaceted and complex one. The dependent variable for this study was financial performance which was measured using return on assets. The independent variables were administration cost concentration, credit policies, asset quality

and non-interest income. The moderating variable was the size of the bank which was measured using log of total book value of assets. Figure 1 shows the conceptual framework that guided the study.



**Figure 1: Conceptual framework**

**Source: Author (2018)**



## 2.6 Operationalization of Variables

Table 1 provides the variables, their indicators and how they were measured in the study.

**Table 1: Operationalization of variables**

| <b>Variable</b>                   | <b>Indicator</b>                                                          | <b>Measurement</b>                                               |
|-----------------------------------|---------------------------------------------------------------------------|------------------------------------------------------------------|
| Financial performance             | Return on assets                                                          | (Net profit after tax / Average assets) * 100                    |
| Administration cost concentration | Administration cost as a ratio of total operating costs                   | (Administration cost / Total operating costs) * 100              |
| Credit policies                   | Total NPLs as a proportion of total loans outstanding                     | (Total NPLs / Gross loans outstanding) *100                      |
| Non-interest income               | Total non-interest income as a proportion of total income                 | (Total non-interest income / Total income) * 100                 |
| Asset quality                     | Impairment Loss Allowance as a proportion of Average Gross Loan Portfolio | (Impairment Loss Allowance / Average Gross Loan Portfolio) * 100 |
| Bank size                         | Value of the bank's assets                                                | Log of book value of total assets                                |

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Introduction**

This chapter describes the overall approach that the researcher used to perform the research study. This consists of the research design, population targeted, sampling technique and sample size, and information collection procedure. Data analysis techniques and process and discussion is likewise presented in this chapter.

#### **3.2 Research Design**

The researcher used descriptive research design. A descriptive study is the type of study where information is collected from the population of interest on the scenario as is, without affecting the environment or affecting the population of interest in any form (Kothari, 2004). The purpose of a descriptive study is therefore to give an account of the scenario as it is (Easterby-Smith, Thorpe & Lowe, 2014). A descriptive study is performed majorly to evaluate relationships or association in between variables of interest in the natural environment of the population under research study (Creswell, 2013). In this research study, offered data from the commercial banks on administration cost concentration, credit policies, non-interest income, asset quality and bank size were associated with profitability of commercial banks to establish how these variables connected to financial performance of the banks.

#### **3.3 Target Population**

The 42 operational commercial banks in Kenya formed the population of interest in this study. Data for the 2013 - 2017 financial year was collected from the audited financial statements of these commercial banks. This study utilized cross sectional data analysis where

data for each of the 42 commercial banks on financial performance, administration cost concentration, credit policies, non-interest income, asset quality and bank size was collected.

### **3.4 Sampling and Sampling Procedure**

A census of all the 42 operational commercial banks in Kenya was conducted. There was no sampling due to the small size of the population. These commercial banks were selected since they had operational information for the period under study (2013 – 2017) and their information was publicly available from Central Bank of Kenya and their published financial statements.

### **3.5 Data Collection Procedure**

The study utilized a data collection sheet. This is a matrix with commercial banks in rows and the study variables in columns indicated all the data to be collected and recorded. This sheet is critical ensure that all relevant data is collected and entered correctly prior to entering the data into a software for analysis. The data collected sheets was used to collect the raw data before computing the variables of interest.

Secondary data that was used to attain the study objectives was sourced from the Central Bank of Kenya bank supervision reports, the audited financial statements of the commercial banks and the websites of the commercial banks. The data collected related to financial performance, assets owned by the bank, non-performing loans, administration costs, total operation costs, non-interest income, asset quality and bank size.

The data collected include data on net profit after tax and the asset worth of the commercial banks. This data was used to compute the ROA which is the dependent variable in this study. Moreover, the study collected data on total operation costs and the administration costs which was applied to calculate the administration cost concentration which is one of the predictors.

Further, the study collected information on total non-performing loans and gross loans to establish the proportion of non-performing loans in relation to gross loans. This was used to indicate the efficiency of the commercial banks' credit policies. Additionally, the study collected information on value of assets which was used in computing the asset quality of the commercial banks. Lastly, the study collected data on non-interest income and total operating income which was used to calculate the proportion of non-interest income to total operating income.

### **3.6 Data Processing and Analysis**

Collected data was edited before entering it into an excel worksheet. The information was then entered into Stata statistical software which was used for analysis through panel data regression. The panel data regression model was applied for analysis since the data had both longitudinal and cross-sectional properties. Presentation of data from the regression analysis was through tables. Association between the different variables under research study will be investigated through correlation analysis to assess whether there is a problem of multicollinearity.

The research study used both inferential and descriptive information analysis methods in the analysis. These were utilized to assist in a description of various gathered data. Inferential analysis was through panel data analysis model which assisted in determining the effect of administration cost concentration, credit policies, non-interest income and asset quality on financial performance of commercial banks in Kenya. The model of the regression was as illustrated below;

$$FP_{it} = \beta_0 + \beta_1 ACC_{it} + \beta_2 CP_{it} + \beta_3 NII_{it} + \beta_4 AQ_{it} + \varepsilon_{it} + u_{it}$$

Where, FP = Financial Performance (ROA)

$\beta_0$  = Constant

$\beta_i$  = Regression coefficients

ACC = Administration Cost-Concentration

CP = Credit Policies

NII = Non-Interest Income

AQ = Asset Quality

$\varepsilon$  = Error term

i = Commercial banks (i = 1 – 42)

t = time period (2013 – 2017)

The testing of the moderating effect was conducted by including log of assets in the model;

$$FP = \beta_0 + \beta_1 ACC * Ass + \beta_2 CP * ASS + \beta_3 NII * ASS + \beta_4 AQ * ASS + \varepsilon$$

Where ASS = Log of total assets

The results' presentation was through tables and figures.

Prior to the performing the panel data regression, test of multicollinearity was performed. Moreover, a Hausmann test was conducted to establish the appropriate model (fixed effects or random effects) to apply. After running the panel regression model, there were post-test diagnostics including test of homoscedasticity, test of omitted variables, test of serial correlation and test of normality of errors. When there is a perfect direct association among the independent variables, the estimates for a regression model cannot be distinctively calculated. The principal problem is that as the degree of multicollinearity rises, the coefficient estimates become unsteady and the standard errors for the coefficients can get extremely exaggerated. Test of multicollinearity was carried out using a correlation matrix and variance inflation factor (VIF).

After fitting the model, test of serial correlation was conducted. The study used Wooldridge test to test for serial correlation. This test was appropriate since the panel was simple as it had 42 entities for five years. Serial correlation is when a variable is related with the lagged version of itself. Violation of serial correlation assumption can cause bias in the estimates of the regression coefficients, can make the regression model to cease to be the minimum variance estimator and can cause the estimated variances of the regression coefficients to be biased, thus making it unreliable for hypothesis testing.

Another presumption of panel data regression is that the variation of the residuals is uniform throughout the different levels of the predicted values, also referred to as homoscedasticity. If the model is a good fit, there should be no pattern to the residuals plotted versus the fitted values. If the difference of the residuals is non-constant, then the residual difference is said to be heteroscedastic. This research study used the modified Wald test to test for heteroscedasticity.

Last but not least, was the test of normality of residuals. In linear regression the assumption is that the residuals are usually distributed. It is necessary to fulfill this presumption for the p-values for the t-tests to be valid. In the present research study, this was evaluated using the typical likelihood plot.

## **CHAPTER FOUR: DATA ANALYSIS, FINDINGS AND DISCUSSION**

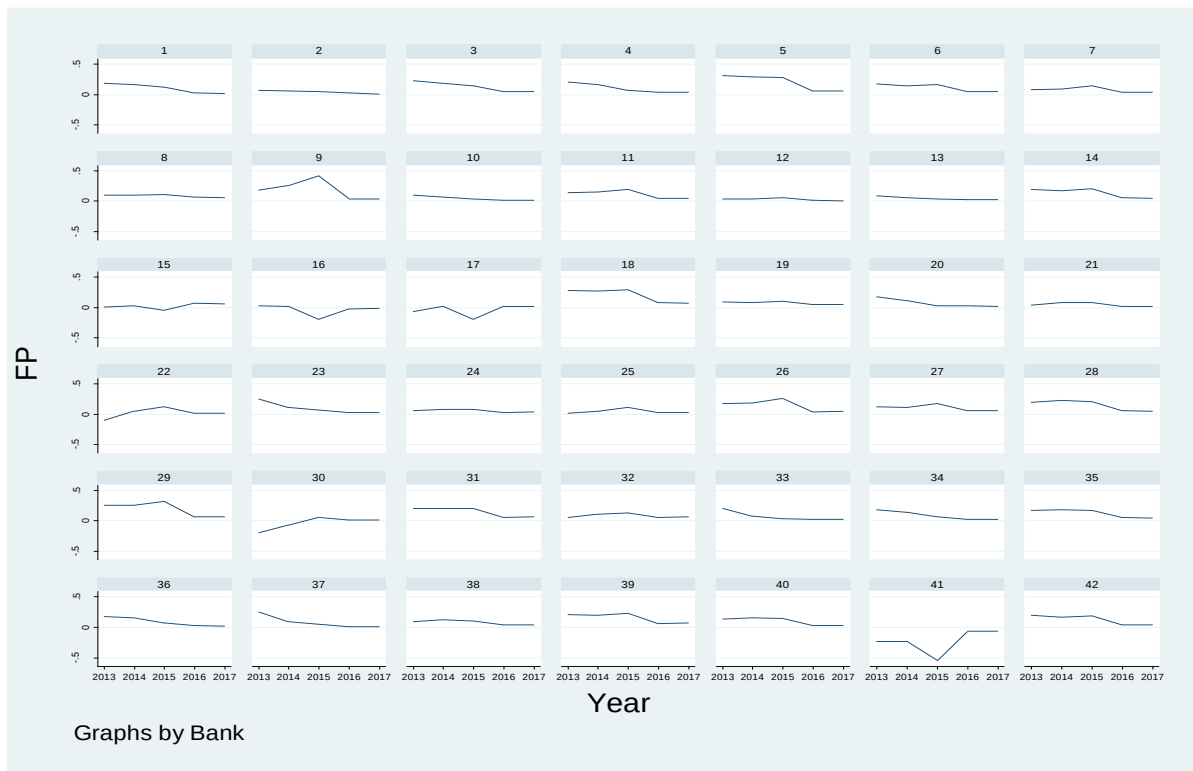
### **4.1 Introduction**

This chapter provides the analysis of the collected secondary data, the interpretation of the resultant findings and discussion of the findings. The data was collected from 42 commercial banks for a period of five years (2013 – 2017). The analysis presented in this chapter relates to the exploratory analysis, descriptive analysis, pre-test diagnostics and the post-test diagnostics. The chapter also presents the results of the panel data model (fixed effects) which was appropriate for the data collected. The model provides the results relating to the effect of Administration Cost-Concentration (ACC), Credit Policies (CP), Non-Interest Income (NII) and Asset Quality (AQ) on financial performance (FP) of the commercial banks in Kenya. The findings are then interpreted and discussed in relation to the reviewed empirical and theoretical literature.

### **4.2 Exploratory Data Analysis**

The study conducted an exploratory data analysis to compare and contrast the financial performance of the 42 commercial banks. The comparison was done based on within and between the firms. First, the study plotted growth plots for each commercial bank over the five years. Figure 2 presents the growth of finance performance over the 5-year period. The growth plots (Trend plot for each commercial bank– trends over the 5-year study period). Assisted in determining whether to use POLS or panel data models (FE and RE), the results in Figure 2 indicate that there were significant differences in the variation of financial performance of the 42 commercial banks over the five years period. These findings suggested that panel data model was more appropriate than POLS.

**Figure 2: Growth Plot of Each Commercial Bank's Financial Performance**



The growth plots presented in Figure 2 show that most of the commercial banks showed a declining trend of financial performance over the five-year period though the decline was gradual. The financial performance of the commercial banks did not have significant fluctuations except for commercial bank 5, 9, 16, 17 and 41.

Further exploratory analysis of the financial performance between the commercial banks was conducted using the overlain plots. This checks if the intercept is the same for firms or varies over firms. This is because basic regression models assume that the intercept is the same for all firms. Results in Figure 3 show that there were no major differences among the firms. However, it is evident that in 2016, most of the commercial banks' financial performance measured using ROA converged towards zero. Most of the commercial banks reported a decrease in financial performance in 2016 compared to the financial performance they had reported in 2015.



**Figure 3: Overlain Plot of Financial Performance**

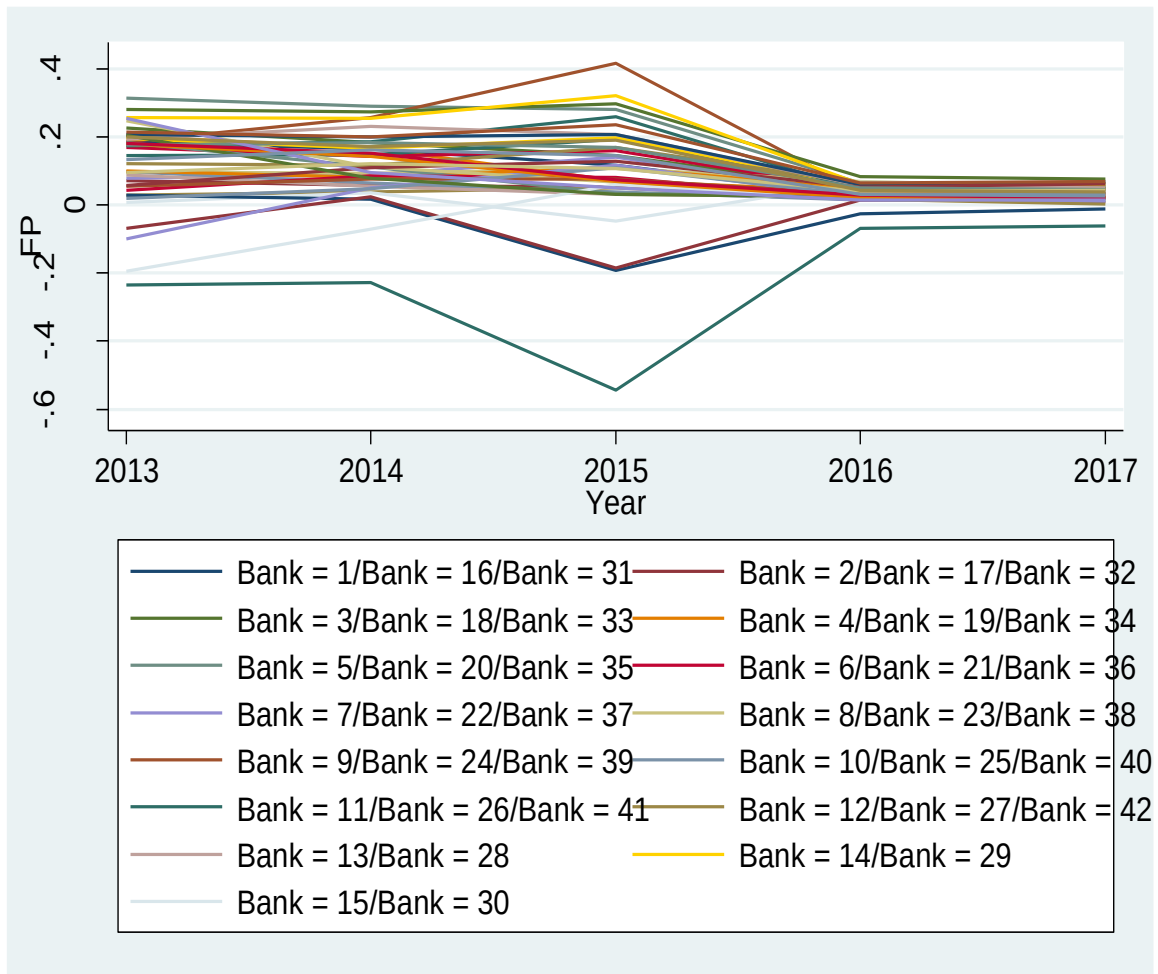


Figure 3 indicates that there were insignificant time-related fixed effects. The firms analyzed showed relatively uniform trend in total debt to asset ratio with a few fluctuations. However, the levels of total debt to asset ratio by the surveyed firms were different as indicated by the different intercepts.

#### 4.3 Diagnostic Tests

The study diagnostics tests which were required to establish whether the data satisfied the assumptions of regression analysis. The tests included test of multicollinearity, serial correlation test, test of homoscedasticity, test of time related fixed effects and Hausmann test.

#### 4.3.1 Test of Multicollinearity

The study conducted a test of multicollinearity which was tested using two methods. First, a correlation analysis between the independent variables was conducted. The correlation findings are presented in Table 2.

**Table 2: Correlation Matrix of the Study Variables**

|      | ACC     | CP      | NII     | AQ      | logA   |
|------|---------|---------|---------|---------|--------|
| ACC  | 1.0000  |         |         |         |        |
| CP   | 0.1383  | 1.0000  |         |         |        |
| NII  | 0.0247  | 0.2410  | 1.0000  |         |        |
| AQ   | 0.1624  | 0.6679  | 0.2733  | 1.0000  |        |
| logA | -0.1587 | -0.4927 | -0.1373 | -0.3583 | 1.0000 |

The study findings presented in Table 2 show that there was no independent variable that was strongly associated with another variable. This was evident since no two variables had a correlation coefficient of 0.7 or above in the correlation matrix. was strongly related to any other as all the correlation coefficients were below 0.6. according to Creswell (2013), multicollinearity can exist if two variables have a correlation of 0.8 or above. Based on the findings on Table 2, there was no multicollinearity among the independent variables.

Further, the study conducted the variance inflation factor (VIF) test of multicollinearity which statistical tests whether there is multicollinearity or not. Findings are presented in Table 3. Creswell (2013) indicates that when VIF is below 10, there is no multicollinearity. Based on the findings on Table 3, all the VIFs of the independent variables were below 10 and hence a conclusion was made that there was no multicollinearity.

**Table 3: Test of Multicollinearity using VIF**

| Variable | VIF  | 1/VIF    |
|----------|------|----------|
| CP       | 2.09 | 0.477844 |
| AQ       | 1.87 | 0.534782 |
| logA     | 1.34 | 0.747717 |
| NII      | 1.09 | 0.918313 |
| ACC      | 1.04 | 0.961394 |
| Mean VIF | 1.49 |          |

#### 4.3.2 Test of Serial Correlation

The study used Wooldridge test to test for serial correlation. This test was appropriate since the panel was simple as it had 42 entities for five years. Serial correlation is when a variable is related with the lagged version of itself. Violation of serial correlation assumption can cause bias in the estimates of the regression coefficients, can make the regression model to cease to be the minimum variance estimator and can cause the estimated variances of the regression coefficients to be biased, thus making it unreliable for hypothesis testing. The results of the serial correlation test are presented in Table 4. The findings indicate that the null hypothesis of no first order auto correlation was accepted ( $p = 0.074$ ). The conclusion was made that there was no serial correlation.

**Table 4: Wooldridge test to test for serial correlation**

|                                                  |       |
|--------------------------------------------------|-------|
| H <sub>0</sub> : No first order auto correlation |       |
| F (1, 41)                                        | 6.226 |
| Prob > F                                         | 0.074 |

#### 4.3.3 Hausmann Test

The study sought to establish which of the two panel models (Fixed effects or random effects) was appropriate for the data. Use Hausman test was used to choose between RE and FE Models. The results are presented in Table 5. The results indicate that the fixed effects model was appropriate for the data (Chi square = 0.0000;  $p < 0.05$ ).

**Table 5: Hausmann Test**

|                                                                                                                                                                                                                                                                                                           | Coefficients |               | (b-B)<br>Difference | sqrt(diag(V_b-V_B))<br>S.E. |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|---------------|---------------------|-----------------------------|
|                                                                                                                                                                                                                                                                                                           | (b)<br>fixed | (B)<br>random |                     |                             |
| logA                                                                                                                                                                                                                                                                                                      | -.2427195    | .0305201      | -.2732397           | .0375478                    |
| ACC                                                                                                                                                                                                                                                                                                       | .4152604     | .1370643      | .2781961            | .0888393                    |
| CP                                                                                                                                                                                                                                                                                                        | -.187204     | -.0405986     | -.1466054           | .0475818                    |
| NII                                                                                                                                                                                                                                                                                                       | .1292112     | .0460248      | .0831864            | .0276431                    |
| AQ                                                                                                                                                                                                                                                                                                        | -.9979399    | -1.016058     | .0181185            | .                           |
| b = consistent under Ho and Ha; obtained from xtreg<br>B = inconsistent under Ha, efficient under Ho; obtained from xtreg<br><br>Test: Ho: difference in coefficients not systematic<br><br>chi2(5) = (b-B)'[(V_b-V_B)^(-1)](b-B)<br>= 303.47<br>Prob>chi2 = 0.0000<br>(V_b-V_B is not positive definite) |              |               |                     |                             |

#### 4.3.4 Test of Time Related Fixed Effects

The study conducted a test to assess whether there were significant time-related fixed effects in the data for the 42 commercial banks over the five years. When there are significant time fixed effects, the model should include dummy variables for the years. The results provided in Table 6 show that there were no significant time related fixed effects ( $p > 0.05$ ). these results implied that no dummy variables were required for the model.

**Table 6: Test Results for Time Fixed Effects**

| Dependent variable    | F-value | p-value |
|-----------------------|---------|---------|
| Financial Performance | 1.83    | 0.091   |

#### 4.3.5 Test for Heteroscedasticity

The study conducted a test for heteroscedasticity using the modified Wald test. The results presented in Table 7 show that there was heteroscedasticity (chi square = 10656.7;  $p < 0.05$ ). due to the presence of heteroscedasticity, the model was run using robust errors instead of standard errors.

**Table 7: Result for Heteroscedasticity using modified Wald test**

|                                                                                         |            |
|-----------------------------------------------------------------------------------------|------------|
| Modified Wald test for groupwise heteroskedasticity<br>in fixed effect regression model |            |
| H0: $\sigma(i)^2 = \sigma^2$ for all i                                                  |            |
| chi2 (42)                                                                               | = 10656.70 |
| Prob>chi2                                                                               | = 0.0000   |

#### 4.4 Panel Data Analysis

The study established that fixed effects model using robust errors was the correct model to apply for the data after the diagnostics test were conducted. Before presenting the fixed effects panel model, a descriptive analysis of the study variables is presented in Table 8. The findings indicate that on average, the financial performance (FP) of the commercial banks was 8.26%. this indicates that over the five years, average return on assets of the commercial banks was 8.26%. Moreover, the mean of log of assets (logA) was 7.4, while mean of administration costs concentration (ACC) was 0.68. These findings indicate that on average, the proportion of administration costs as a proportion of total operation costs was 0.68. Moreover, mean of credit policy (CP) was 0.09, indicating that on average, 9% of the commercial banks' loans were NPLs. Additionally, mean of non-interest income (NII) was 0.34 indicating that on average, non-interest income formed 34% of the banks' operating income. Further, mean of asset quality (AQ) was 0.013 indicating that on average, 1.3 percent of the bank's assets were impaired. Further descriptive statistics are presented in Table 8.

**Table 8: Descriptive Statistics of the Study Variables**

| Variable |         | Mean     | Std. Dev. | Min       | Max      | Observations |     |
|----------|---------|----------|-----------|-----------|----------|--------------|-----|
| FP       | overall | .0826361 | .1044204  | -.5430433 | .415556  | N =          | 210 |
|          | between |          | .0761607  | -.2270525 | .2027206 | n =          | 42  |
|          | within  |          | .0722092  | -.2333547 | .3124842 | T =          | 5   |
| logA     | overall | 7.399973 | .565357   | 6.236344  | 8.576306 | N =          | 210 |
|          | between |          | .5552892  | 6.412235  | 8.473665 | n =          | 42  |
|          | within  |          | .1310871  | 7.024825  | 7.936348 | T =          | 5   |
| ACC      | overall | .6844611 | .067269   | .3598585  | .8297633 | N =          | 210 |
|          | between |          | .0573679  | .5200717  | .7942279 | n =          | 42  |
|          | within  |          | .0360142  | .5143016  | .8088137 | T =          | 5   |
| CP       | overall | .0958324 | .1099154  | .0011602  | .7940561 | N =          | 210 |
|          | between |          | .0950773  | .0146723  | .5296129 | n =          | 42  |
|          | within  |          | .0566985  | -.0934965 | .4274493 | T =          | 5   |
| NII      | overall | .342403  | .1449831  | .0549929  | .949818  | N =          | 210 |
|          | between |          | .1181814  | .1327254  | .7210375 | n =          | 42  |
|          | within  |          | .0855602  | .013989   | .6738366 | T =          | 5   |
| AQ       | overall | .0134628 | .0177419  | -.0015042 | .117731  | N =          | 210 |
|          | between |          | .013394   | .0016801  | .0726584 | n =          | 42  |
|          | within  |          | .0117818  | -.024832  | .084448  | T =          | 5   |

The results of the fixed effects panel data model are presented in Table 9. The data had cross sectional component (42 commercial banks) and a time series component (5 years). This formed a total of 210 observations since the panel was balanced. The model included administration costs concentration (ACC), credit policy (CP), non-interest income (NII) and asset quality (AQ) as the independent variables. Bank size measured by log of assets was included in the model to moderate the effect. The dependent variable was financial performance (FP) which was measured using ROA.

**Table 9: Fixed Effects Panel Regression on Total Debt**

|                                   |   |        |                    |   |        |
|-----------------------------------|---|--------|--------------------|---|--------|
| Fixed-effects (within) regression |   |        | Number of obs      | = | 210    |
| Group variable: Bank              |   |        | Number of groups   | = | 42     |
| R-sq: within                      | = | 0.2512 | Obs per group: min | = | 5      |
| between                           | = | 0.3393 | avg                | = | 5.0    |
| overall                           | = | 0.0970 | max                | = | 5      |
| corr(u_i, Xb) = -0.9074           |   |        | F(5,163)           | = | 10.94  |
|                                   |   |        | Prob > F           | = | 0.0000 |

| FP      | Coef.     | Std. Err.                         | t     | P> t  | [95% Conf. Interval] |           |
|---------|-----------|-----------------------------------|-------|-------|----------------------|-----------|
| ACC     | .4152604  | .1481685                          | 2.80  | 0.006 | .1226833             | .7078374  |
| CP      | -.187204  | .1073317                          | -1.74 | 0.083 | -.3991437            | .0247358  |
| NII     | .1292112  | .0598683                          | 2.16  | 0.032 | .0109938             | .2474286  |
| AQ      | -.9979399 | .4949788                          | -2.02 | 0.045 | -1.975337            | -.0205425 |
| logA    | -.2427195 | .0415905                          | -5.84 | 0.000 | -.3248452            | -.1605939 |
| _cons   | 1.581658  | .3121934                          | 5.07  | 0.000 | .9651928             | 2.198122  |
| sigma_u | .18516268 |                                   |       |       |                      |           |
| sigma_e | .07075513 |                                   |       |       |                      |           |
| rho     | .87258599 | (fraction of variance due to u_i) |       |       |                      |           |

|                        |              |      |                   |
|------------------------|--------------|------|-------------------|
| F test that all u_i=0: | F(41, 163) = | 5.15 | Prob > F = 0.0000 |
|------------------------|--------------|------|-------------------|

Findings presented in Table 4.8 show that the model was significant and hence was a good fit ( $f(5,163) = 10.94$ ;  $p < 0.05$ ). The correlation between errors and regressors was  $-0.9074$  ( $\text{corr}(u_i, Xb) = -0.9074$ ). Further findings indicate that intraclass correlation( $\rho$ ) was  $0.8726$  indicating that  $87.26\%$  of the variance was due to differences across panels. Additionally, findings in Table 9 show that  $r$  squared within the commercial banks was  $0.2512$ , between the commercial banks was  $0.3393$  and overall was  $0.0970$ . this is a confirmation that the fixed effects model explained the variation better than if the POLS model could have been applied.

The results in Table 9 administration cost-concentration had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.4153$ ;  $p < 0.05$ ). these

findings imply that when the proportion of administration costs in the banks' total operating costs increase, financial performance is expected to increase.

Findings in Table 9 show that credit policies had a negative but insignificant effect on financial performance of commercial banks in Kenya ( $\beta = -0.1872$ ;  $p > 0.05$ ). these findings indicate that when NPLs increase, this is expected to lead to reduced financial performance. However, this effect is not significant.

Study results in Table 9 reveal that non-interest income had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.1292$ ;  $p < 0.05$ ). these findings imply that when the proportion of non-interest income in the total operating income of the bank increases, the financial performance of the bank improves significantly.

Study findings in Table 9 show that asset quality had a significant negative effect on financial performance of commercial banks in Kenya ( $\beta = -0.9979$ ;  $p < 0.05$ ). These findings indicate that when asset quality increases, financial performance of the commercial banks decrease significantly. This was expected since asset quality was measured using asset impairment. This hence implies that increase in asset impairment would results to significant reduction in financial performance.



## **CHAPTER FIVE**

### **SUMMARY, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Introduction**

This chapter presents a summary of the findings, discussion of the findings, conclusion and recommendations made based on the results of the study. The discussion of results relates to the four research questions that the study sought to answer. The discussion also provides a critique of the findings in relation to the reviewed literature in chapter two. The purpose of the study was to establish the strategies that commercial banks adopt to enhance financial performance. The specific objectives of the study were to: establish the effect of effect of administration cost-concentration on financial performance of commercial banks in Kenya; assess the effect of credit policies on financial performance of commercial banks in Kenya; determine the effect of non-interest income on financial performance of commercial banks in Kenya and; establish the effect of asset quality on financial performance of commercial banks in Kenya.

#### **5.2 Summary of Findings**

The findings indicate that on average, the financial performance (FP) of the commercial banks was 8.26%. This indicates that over the five years, average return on assets of the commercial banks was 8.26%. Moreover, the mean of log of assets (logA) was 7.4, while mean of administration costs concentration (ACC) was 0.68. These findings indicate that on average, the proportion of administration costs as a proportion of total operation costs was 0.68. Moreover, mean of credit policy (CP) was 0.09, indicating that on average, 9% of the commercial banks' loans were NPLs. Additionally, mean of non-interest income (NII) was 0.34 indicating that on average, non-interest income formed 34% of the banks' operating

income. Further, mean of asset quality (AQ) was 0.013 indicating that on average, 1.3 percent of the bank's assets were impaired. Further descriptive statistics are presented in Table 4.7.

Findings relating to the fixed effects panel regression model show that the model was significant and hence was a good fit ( $f(5,163) = 10.94$ ;  $p < 0.05$ ). The correlation between errors and regressors was  $-0.9074$  ( $\text{corr}(u_i, Xb) = -0.9074$ ). Further findings indicate that intraclass correlation( $\rho$ ) was  $0.8726$  indicating that  $87.26\%$  of the variance was due to differences across panels. Additionally, findings in Table 4.8 show that  $r$  squared within the commercial banks was  $0.2512$ , between the commercial banks was  $0.3393$  and overall was  $0.0970$ . This is a confirmation that the fixed effects model explained the variation better than if the POLS model could have been applied.

Findings show that administration cost-concentration had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.4153$ ;  $p < 0.05$ ). These findings imply that when the proportion of administration costs in the banks' total operating costs increase, financial performance is expected to increase.

Findings show that credit policies had a negative but insignificant effect on financial performance of commercial banks in Kenya ( $\beta = -0.1872$ ;  $p > 0.05$ ). These findings indicate that when NPLs increase, this is expected to lead to reduced financial performance. However, this effect is not significant.

Study results reveal that non-interest income had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.1292$ ;  $p < 0.05$ ). These findings imply that when the proportion of non-interest income in the total operating income of the bank increases, the financial performance of the bank improves significantly.

Study findings show that asset quality had a significant negative effect on financial performance of commercial banks in Kenya ( $\beta = -0.9979$ ;  $p < 0.05$ ). These findings indicate that when asset quality increases, financial performance of the commercial banks decrease.

significantly. This was expected since asset quality was measured using asset impairment. This hence implies that increase in asset impairment would results to significant reduction in financial performance.

## **5.2 Discussion of Findings**

Findings show that administration cost-concentration had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.4153$ ;  $p < 0.05$ ). These findings do not support the efficiency hypothesis by Demsetz (1973). The Efficiency Hypothesis indicates that higher profits of organizations, such as commercial banks, are not due to their collusive habits but emanate from high performance level, which in turn, causes bigger market shares that banks possess. In other words, success of commercial banks is determined not by the market concentration, but by bank performance through efficient operations (Grygorenko, 2009). Financial performance is therefore not a factor of collusion or size by banks, but it is influenced by a variety of factors including efficiency, diversity of revenues and innovation. The findings from this study disagree with findings from a study by Obamuyi (2013). The study by Obamuyi (2013) established that administration cost had a negative effect on financial performance of commercial banks in Nigeria. Further, the study results disagree with findings by Amare (2012) who investigated the factors determining profitability of commercial banks in Ethiopia where interest rates were controlled. The study by Amare (2012) showed that profitability is influenced by administration and operational cost management among other factors. Banks that were able to control their administration costs were on average more profitable than their counterparts with high administration costs. This was contrary to the findings from this study.

Findings show that credit policies had a negative but insignificant effect on financial performance of commercial banks in Kenya ( $\beta = -0.1872$ ;  $p > 0.05$ ). This finding disagrees

with the symmetric information theory by Derban et al. (2005) who recommended that bank customers should be evaluated particularly by banking institutions in relation to credit assessment. Collection of dependable information from prospective customers becomes important in achieving effective screening as shown by symmetric information theory. Qualitative and quantitative techniques can be utilized in assessing the borrowers although one significant difficulty of utilizing qualitative designs is their subjective nature. This is expected to reduce NPLs and enhance financial performance. This study however, found no association between NPLs and financial performance. The findings from this study also disagree with findings by Nduku (2016) who carried out a research study that investigated the effect of credit risk management on financial performance of commercial banks in Kenya. The study revealed that non-performing loans had a negative relationship with ROE. These findings implied that increase in non-performing loans would result to a decrease in profitability of the commercial banks. However, the current study applied ROA as a measure of performance which can explain the difference in results.

Study results reveal that non-interest income had a significant positive effect on financial performance of commercial banks in Kenya ( $\beta = 0.1292$ ;  $p < 0.05$ ). These findings disagree with findings by Baek et al. (2015) who investigated the effect of the diversification to non-interest income by Korean banks on their profitability. The study established that due to low interest rate spread in the country after the 1997 Asian bank crisis, Korean banks had intentionally increased the share of noninterest revenue as a vehicle of banking diversification. However, this did not have an effect on financial performance of the banks as it was accompanied with the soaring of net noninterest income expense. The findings from this study agree with findings by Mutuma and Mungatu (2016) who investigated the effects of non-interest income on the aversion of systemic risks and enhancement of profitability of commercial banks in Kenya. The results by Mutuma and Mungatu (2016) revealed that a

strong relationship exist between non-interest income (foreign exchange trading income, divided income, deposit and transaction fee and fees and commissions) and profitability of commercial banks. These findings are similar to the findings from this study. Findings from this study also agree to the findings by Oniang'o (2015) and DeYoung and Rice (2012).

Study findings show that asset quality had a significant negative effect on financial performance of commercial banks in Kenya ( $\beta = -0.9979$ ;  $p < 0.05$ ). these findings relate with the financial leverage model by Wolfe (2010). This model posits that as banks buy various assets, their portfolio will start to overlap and look gradually alike. A decrease in the value of these assets through impairment can cause joint disasters and reduce profitability and sustainability of commercial banks. Findings from this study also concur with the findings by Ochieng and Kwasira (2017) who assessed the strategic responses to institutional pressures on performance of commercial banks in Nakuru Central Business District, Kenya. The study by Ochieng and Kwasira (2017) indicated that commercial banks responded through contemporary practices that included lowering the impairment losses on their assets to ensure high quality for their assets which enhanced their financial performance. These findings from this study also concur with findings by Kadioglu et al. (2017), Nzioka (2016) and Alemu (2015).

### **5.3 Conclusion**

The study assessed the strategies adopted by commercial banks in Kenya to enhance financial performance. Administration cost concentration, credit policies, asset quality and non-interest income were the independent variables in the study while financial performance was the dependent variable. The study findings led to the following conclusions. First, the administration cost concentration by commercial banks in Kenya had a significant positive effect on financial performance of the commercial banks. This hence indicates that firms with

a higher proportion of administration costs in their operation costs reported higher financial performance.

Regarding credit policies, the study concludes that they had no significant effect on financial performance of commercial banks in Kenya. This implies that the proportion of NPLs in the commercial banks did not have a bearing on financial performance of the commercial banks. Having too tight or too lax credit policies is not expected to materially influence financial performance for the commercial banks.

The study also concludes that non-interest income had a significant positive effect on financial performance of commercial banks in Kenya. The commercial banks with a higher proportion of non-interest income in their operating income performed better than their peers who had a lower proportion of non-interest income. Enhancing the levels of non-interest income could boost financial performance for the commercial banks.

Lastly, the study concludes that asset quality significantly influences financial performance of commercial banks in Kenya. Commercial banks that have little asset impairment and provisions are expected to boost their financial performance as these factors have a direct bearing on financial measures of performance.

## **5.4 Recommendations**

From the study results, the study recommends the following. On administration costs concentration, commercial banks should seek to enhance their efficiency by leveraging on technology. When revenues from interest income dwindle, commercial banks need to enhance their efficiency by reducing their administration costs as part of the strategy of lean management.

The study established that level of NPLs had a negative effect on financial performance of commercial banks in Kenya though the effect was not significant. However,

when levels of NPLs increase over a sustained long period, it can have adverse effects on financial performance and liquidity of the firm. It is hence recommended that commercial banks should tighten their credit policies to ensure that only clients with riskiness that is covered by the capped interest rates access loan products from the commercial banks.

Study results revealed that non-interest income significantly affect financial performance of commercial banks in Kenya. Commercial banks should hence seek to perform other intermediation roles to diversify their revenue sources so that they do not rely heavily on the ever-reducing interest income.

Study findings showed that impairment of asset quality significantly affects financial performance of commercial banks in Kenya. This indicates that credit risk is key in influencing financial performance of commercial banks. Therefore, management in commercial banks should be effective in controlling and monitoring credit risk to achieve a higher credit rating.

## **5.5 Suggestions for Further Research**

The study results make significant contributions to financial practice, theory and empirical evidence regarding strategies that are adopted by commercial banks to boost financial performance. This is a vital area in the interest rate capping regime in Kenya as commercial banks need to stop from over relying on interest income. It hence provides avenues through which commercial banks can enhance their financial performance when interest income avenues are threatened. However, the study faced some limitations as it only focused on strategies that consider internal factors. For future research, a study on strategies that consider both internal and external factors is recommended.





## REFERENCES

- Creswell, J. (2013). *Research Design; Qualitative and Quantitative and Mixed Methods Approaches* (3rd ed.). London: Sage.
- Coolican, H. (2014). *Research methods and statistics in psychology* (4th ed.). London: Hugh Coolican.
- Easterby-Smith, M., Thorpe, R. & Lowe, A. (2014). *Management Research: An introduction* (6th ed.) London: SAGE Publication Ltd.
- Kothari, C. R. (2004). *Research methodology: methods and techniques* (2nd ed.). New Delhi: New Age International Publishers.
- Alemu, S. (2015). *Determinants of commercial banks profitability: The case of Ethiopian commercial banks*. Master of Science Thesis, Addis Ababa University, Addis Ababa.
- Amare, B. T. (2012). *Determinants of Commercial Banks Profitability: An Empirical Evidence from the Commercial Banks of Ethiopia*. A Master of Business Administration thesis, Addis Ababa University, Addis Ababa.
- Baek, S., Cha, S. Y., & Lee, N. (The Effect of the Diversification in Korean Banks: The impact on Profit and Risk. *Journal of Accounting and Finance*, 15(2), 51 – 69.
- Bridge, B. M. (1998). Financial Distress in Local Banks in Kenya, Uganda and Zambia: Causes and Implications for Regulatory Policy. *Development Policy Review Journal*, 16(2), 173-89.
- Chen, N. F., Roll, R. & Ross, S. A. (1986). Economic forces and the stock market. *Journal of Business*, 59, 383-403.
- Demsetz, H. (1973). Industry Structure, Market Rivalry and Public Policy. *Journal of Law and Economics*, 18(3), 98 – 104.
- Derban, W. K., Binner, J. M., & Mullineux, A. (2005). Loan repayment performance in community development finance institutions in the UK. *Small Business Economics*, 25, 319-32.
- DeYoung, R., & Rice, T. (2012). Noninterest Income and Financial Performance at U.S. Commercial Banks. *The Financial Review*, 43(2), 125 – 132.
- Essendi, L. K. (2013). The effect of credit risk management on loans portfolio among SACCOs in Kenya.
- Gakure, R. W., Ngugi, J. K., Ndwiga, P. M., & Waithaka, S. M. (2012). Effect of credit risk management techniques on the performance of unsecured bank loans employed commercial banks in Kenya. *International Journal of Business and Social Research*, 2(4), 221 – 236.

- Gatuhu, R. N. (2011). The effect of credit management on the financial performance of microfinance institutions in Kenya. MBA Research Project, University of Nairobi, Nairobi.
- Grygorenko, O. (2009). Effects of Price Setting on Bank Performance: The case of Ukraine. Kyiv: Kyiv School of Economics, Ukraine.
- Kadioglu, E., Telceken, N., & Ocal, N. (2017). Effect of the Asset Quality on the Bank Profitability. *International Journal of Economics and Finance*, 9(7), 60 – 68.
- Kavwele, D. T., Ariemba, J. M., & Evusa, Z. (2018). Effect of Interest Rate Capping on the Financial Performance of Commercial Banks in Kenya. *International Journal of Business Management and Economic Research*, 9(1), 1182-1190.
- Levy, D. (1994). Search for new paradigms. *Strategic Management Journal*, 15, 167 - 178.
- Markowitz, H. M. (1959). *Portfolio Selection: Efficient Diversification of Investment*. John Wiley & Sons, New York.
- Mensi, S. & Zouari, A. (2010). *Efficient Structure versus Market Power: Theories and Empirical Evidence*. Tunis: Manouba University Higher Business Studies Institute (IHEC).
- Mutuma, J. & Mungatu, J. K. (2016). Effects of non-interest income on the aversion of systemic risks of commercial banks in Kenya. *European Journal of Business and Social Sciences*, 5(7), 144 – 158.
- Nduku, N. R. (2016). The effect of credit risk management on financial performance of commercial banks in Kenya. MBA Research Project, University of Nairobi, Nairobi.
- Njoroge, J. M. (2016). Determinants of profitability of commercial banks in Kenya. MBA Research Project, University of Nairobi, Nairobi.
- Nzioka, F. K. (2016). The effect of assets quality on the financial performance of commercial banks in Kenya. MBA Research Project, University of Nairobi, Nairobi.
- Obamuyi, T. M. (2013). Determinants of banks' profitability in a developing economy: Evidence from Nigeria. *Organizations and Markets in Emerging Economies*, 4(8), 97 – 111.
- Ochieng, A. O. & Kwasira, J. (2017). Assessment of strategic responses to institutional pressures on performance of commercial banks in Nakuru Central Business District, Kenya. *International Journal of Economics, Commerce and Management*, 5(5), 632 – 661.
- Oniang'o, R. (2015). Effect of non-interest income on profitability of commercial banks in Kenya. MBA Research Project, University of Nairobi, Nairobi.
- Rhoades, S. A. (1985). Market Share as a Source of Market Power: Implications and Some Evidence. *Journal of Economics and Business*, 37(4), 343-363.

- Roll, R. & Ross, S. A. (1980). An Empirical Investigation of the Arbitrage Pricing Theory. *Journal of Finance*, 35, 1073-1103.
- Ross, S.A. (1976). The Arbitrage Theory of Capital Asset Pricing. *Journal of Economic Theory*, 13, 341-360.
- Smirlock, M. (1985). Evidence of the relationship between Concentration and Profitability in Banking. *Journal of Money, Credit and Banking*, 17(1), 69-83.
- Roll, R., & Ross, S. (1980). An empirical investigation of the arbitrage pricing theory. *Journal of Finance*, 35(5), 1073–1103.
- Kagecha, P. K. (2014). Bank performance: Does bank size matter? Master of Business Administration Research Project, University of Nairobi.
- Gatete, A. (2015). The effect of bank size on profitability of commercial banks in Kenya. Master of Business Administration Research Project, University of Nairobi.
- Aladwan, M. (2015). The impact of bank size on profitability: an empirical study on listed Jordanian commercial banks. *European Scientific Journal*, 11(34), 217-236.

**Appendix: Data Collection Schedule**

| <b>Bank</b> | <b>Admin<br/>Cost</b> | <b>Total<br/>operating<br/>cost</b> | <b>Value<br/>of<br/>assets</b> | <b>Total<br/>loans</b> | <b>NPLs</b> | <b>Total<br/>deposits</b> | <b>Non-<br/>interest<br/>income</b> | <b>Total<br/>operating<br/>income</b> |
|-------------|-----------------------|-------------------------------------|--------------------------------|------------------------|-------------|---------------------------|-------------------------------------|---------------------------------------|
|             |                       |                                     |                                |                        |             |                           |                                     |                                       |
|             |                       |                                     |                                |                        |             |                           |                                     |                                       |
|             |                       |                                     |                                |                        |             |                           |                                     |                                       |
|             |                       |                                     |                                |                        |             |                           |                                     |                                       |
|             |                       |                                     |                                |                        |             |                           |                                     |                                       |

