LIQUIDITY RISKS AND PROFITABILITY OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE, KENYA.

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REG NO: D53/37603/2016

A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF BUSINESS ADMINISTRATION (FINANCE OPTION), KENYATTA UNIVERSITY.

JULY, 2019
DECLARATION

Declaration by the Student

I declare that this project is my original work and has not been submitted for an award of a degree in any other University for examination purposes.

Signature...................................................... Date......................................................

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REG NO: D53/37603/2016

This is to confirm that this work has been submitted for examination by the study under my guidance as the University Supervisor.

Signature...................................................... Date......................................................

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DEDICATION

I wish to express my profound gratitude to God Almighty, helper, motivator and the giver of life. He has been my pillar, guide and strength throughout the course of this study.

My inexpressible thanks go to my wife, Janet Mwendwa for the unusual understanding, sacrifices and prayers throughout the programme. Special dedication to my lovely mum Monica Ndani, my brother Timothy Kagoko and my sister Ann Nyokabi for encouragement, love, care and support through this course I don’t take it for granted.

May God bless them.
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My thanks go to my supervisor, Dr. Charity Njoka, for her guidance and immeasurable support, encouragement and patience in writing of this project. Also, it is with sincere gratitude to my Accounting and Finance department for giving me permission to formulate this project for research and the fellow colleagues who offered their advices and encouragement.
TABLE OF CONTENTS

DECLARATION ....................................................................................................................... ii
DEDICATION ........................................................................................................................ iii
ACKNOWLEDGEMENT ........................................................................................................ iv
LIST OF TABLES .................................................................................................................. viii
LIST OF FIGURES ............................................................................................................... ix
OPERATIONAL DEFINITION OF TERMS ........................................................................ x
ABBREVIATIONS AND ACRONYMS .................................................................................. xii
ABSTRACT ........................................................................................................................... xiii

CHAPTER ONE: INTRODUCTION ....................................................................................... 1

1.1 Background of the Study .............................................................................................. 1
1.1.1 Liquidity Risk ........................................................................................................... 2
1.1.2 Profitability of the Commercial Banks listed at the Nairobi Securities Exchange .... 3
1.2 Statement of the Problem ............................................................................................ 5
1.3 Objectives of the Study ............................................................................................... 7
1.3.1 General Objective .................................................................................................... 7
1.3.2 Specific Objectives ................................................................................................... 7
1.4 Research Hypotheses .................................................................................................... 8
1.5 Significance of the Study ............................................................................................. 9
1.6 Scope of the Study ....................................................................................................... 9
1.7 Limitations of the Study ............................................................................................. 9
1.8 Organization of the study ........................................................................................... 9

CHAPTER TWO: LITERATURE REVIEW ........................................................................ 11

2.1 Introduction .................................................................................................................. 11
2.2 Theoretical Review ..................................................................................................... 11
2.2.1 Liquidity Preference Theory .................................................................................. 11
2.2.2 Shift Ability Theory ............................................................................................... 12
2.3 Empirical Review ......................................................................................................... 14
2.3.1 Net loan Holdings and Profitability of Commercial Banks listed at the Nairobi Securities Exchange .......................................................................................................................................................................................... 14
2.3.2 Asset Quality and Profitability of Commercial Banks Listed at the Nairobi Securities Exchange .......................................................................................................................................................................................... 16
2.3.3 Liquid Assets Holdings and Profitability of Commercial Banks Listed at the Nairobi Securities Exchange .......................................................................................................................................................................................... 18
2.4 Summary of the Review of Literature and Research Gaps .......................................... 20
2.5 Conceptual Framework

**CHAPTER THREE : RESEARCH METHODOLOGY**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Introduction</td>
<td>24</td>
</tr>
<tr>
<td>3.2 Research Design</td>
<td>24</td>
</tr>
<tr>
<td>3.3 Target Population</td>
<td>24</td>
</tr>
<tr>
<td>3.4 Sampling Design</td>
<td>25</td>
</tr>
<tr>
<td>3.5 Empirical Model</td>
<td>25</td>
</tr>
<tr>
<td>3.6 Operationalization and Measurement of Variables</td>
<td>26</td>
</tr>
<tr>
<td>3.7 Data Collection Instrument</td>
<td>27</td>
</tr>
<tr>
<td>3.8 Data Collection Procedure</td>
<td>26</td>
</tr>
<tr>
<td>3.9 Data Analysis and Presentation</td>
<td>27</td>
</tr>
<tr>
<td>3.10 Diagnostic Tests</td>
<td>28</td>
</tr>
<tr>
<td>3.10.1 Multicolinearity Test</td>
<td>28</td>
</tr>
<tr>
<td>3.11 Research Ethics</td>
<td>28</td>
</tr>
</tbody>
</table>

**CHAPTER FOUR : DATA ANALYSIS AND PRESENTATION**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1 Introduction</td>
<td>29</td>
</tr>
<tr>
<td>4.2 Descriptive Analysis</td>
<td>29</td>
</tr>
<tr>
<td>4.3 Multicollinearity Test</td>
<td>30</td>
</tr>
<tr>
<td>4.4 Test for Fixed Effect of Random Effect</td>
<td>32</td>
</tr>
<tr>
<td>4.5 Regression Analysis</td>
<td>33</td>
</tr>
<tr>
<td>4.6 Hypotheses Testing and Discussion of the Findings</td>
<td>35</td>
</tr>
<tr>
<td>4.6.1 Net Loans Holdings and Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>35</td>
</tr>
<tr>
<td>4.6.2 Asset Quality and Profitability of Commercial Banks Listed at the NSE Kenya</td>
<td>36</td>
</tr>
<tr>
<td>4.6.3 Liquid Asset Holdings and Profitability of Commercial Banks Listed at the NSE Kenya</td>
<td>37</td>
</tr>
<tr>
<td>4.7 Summary of Hypotheses Testing</td>
<td>39</td>
</tr>
</tbody>
</table>

**CHAPTER FIVE : SUMMARY, CONCLUSION AND POLICY IMPLICATIONS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1 Introduction</td>
<td>40</td>
</tr>
<tr>
<td>5.2 Summary of the Study</td>
<td>40</td>
</tr>
<tr>
<td>5.2.1 Net Loan Holdings</td>
<td>41</td>
</tr>
<tr>
<td>5.2.2 Asset Quality</td>
<td>41</td>
</tr>
<tr>
<td>5.2.3 Liquid Asset Holdings</td>
<td>41</td>
</tr>
<tr>
<td>5.3 Conclusion</td>
<td>41</td>
</tr>
<tr>
<td>5.4 Policy Implications and Recommendations</td>
<td>42</td>
</tr>
</tbody>
</table>
References ................................................................................................................................. 44
APPENDICES ............................................................................................................................. 46
LIST OF TABLES

Table 1.1: Trends in Profitability of Commercial Banks in Kenya ..............................................4

Table 2.1: Summary of Literature Review and Research Gaps .......................................................21

Table 3.1: Operationalization and Measurement of Variables .........................................................26

Table 4.1: Descriptive Statistics ........................................................................................................29

Table 4.3: Hausman Test ....................................................................................................................32

Table 4.4: Regression Results ..........................................................................................................33

Table 4.8: Summary of Hypotheses ....................................................................................................39
LIST OF FIGURES

Figure 2.1 Conceptual Framework ................................................................. 23
OPERATIONAL DEFINITION OF TERMS

Asset Quality: These refer to the ratio of non-performing loans to total loans. This measure how well a financial institution predicts the credit risk of their assets and how they manage them.

Commercial banks: These are financial institutions which have the mandate of taking deposits and issuing out loans for investments with the aim of earning profit.

Liquid Assets Holdings: These refer to the measure of the asset portfolio maturity structure of the financial assets which indicates the level of excessive maturity unbalances.

Liquidity risks: These is the risk that a bank is unable to meet the customer’s demand of withdrawing their deposits and getting loans as or at the time of their need.

Net Loan Holdings: These is a ratio which is based on sum of borrowed money upon which the debtor has not made the scheduled payments for a specified period as a percentage of total assets.

Nairobi Securities Exchange: These is the derivative market that facilitates the trading of futures contracts in the Kenyan market established with the aim of broadening and deepening and integration of the
Kenyan financial markets with international financial markets.

**Profitability**
These refers to the degree to which a bank yields profit or financial gain in its operations. Return on equity will be used to measure profitability.

**Return On Equity**
These is the profitability ratio measures the ability of a firm to generate profits from its shareholders investments in the firm.

**Total Assets**
These refers to the amount of asset owned by banks and are spent over time to yield benefit for the banks.

**Total Loans**
These is the total amount of credits issued by banks to individuals or other institutions.
### ABBREVIATIONS AND ACRONYMS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AQ</td>
<td>Asset Quality</td>
</tr>
<tr>
<td>ARDL</td>
<td>Autoregressive Distributed Lag</td>
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<td>CBK</td>
<td>Central Bank of Kenya</td>
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<td>CMA</td>
<td>Capital Market Authority</td>
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<tr>
<td>CR</td>
<td>Cash Ratio</td>
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<tr>
<td>EBIT</td>
<td>Earnings before interest and tax</td>
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<td>GMM</td>
<td>Generalized Method of Moments</td>
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<tr>
<td>KNBS</td>
<td>Kenya National Bureau of Statistics</td>
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<tr>
<td>LR</td>
<td>Liquidity Risk</td>
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<tr>
<td>MFI</td>
<td>Microfinance Institutions</td>
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<tr>
<td>NACOSTI</td>
<td>National Commission for Science, Technology and Innovation</td>
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<tr>
<td>NIM</td>
<td>Net Interest Margin</td>
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<tr>
<td>NPL</td>
<td>Non-performing Loans</td>
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<tr>
<td>NSE</td>
<td>Nairobi Securities Exchange</td>
</tr>
<tr>
<td>OLS</td>
<td>Ordinary Least Square</td>
</tr>
<tr>
<td>ROA</td>
<td>Return on Assets</td>
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<td>ROE</td>
<td>Return on Equity</td>
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</tbody>
</table>
ABSTRACT
Globally, banks play important roles in the economy of countries. These banks channel funds from surplus units to deficit units for consumption and investment purposes. However, financial intermediation role of banks is not without its challenges, this banks have the fundamental role in short term deposits maturity transformation to long-term loans which makes them prone to liquidity risks. Liquidity risk is inherent activities of commercial banks due to the nature of their operations. ROE in 2010, 2011, 2012, 2013, 2014 and 2015 was 25.98%, 23.10%, 21.99%, 20.94% and 20.88% respectively. Also, the ROE declined to 17.39% in 2015 thus showing a downward trend in the profitability of the commercial banks listed at the Nairobi Securities Exchange. The research sought to ascertain liquidity risk effect on profitability of listed commercial banks at the Nairobi Securities Exchange, Kenya which is the general objective. In line with this, the specific objective was to evaluate the effect of net loan holdings, asset quality and liquid assets holdings on profitability of listed commercial banks at the Nairobi Securities Exchange, Kenya. The study was anchored on Liquidity Preference Theory, Shift Ability Theory and Financial Intermediation Theory to provide underpinning for the research. The research adopted causal research design where the study population comprised all the 11 listed commercial banks at the Nairobi Securities Exchange, Kenya as at December 2018. The research used descriptive analysis and panel regression analysis for the data analysis. The panel regression analysis indicated that net loans holdings have a negative and significant effect on the profitability of commercial banks. Similarly, with respect to asset quality and profitability of commercial banks, the regression output revealed that the effect of asset quality on profitability is negative and significant. On the effect of liquid assets holdings on profitability of commercial banks, the findings from the regression output indicated an inverse and significant effect of liquid assets holdings on profitability of commercial banks Listed at the Nairobi Securities Exchange, Kenya. The study recommends that banks should avoid having a large proportion or too much of their total assets in the long-term loans as this makes the banks illiquid, thereby hampering its profitability level. Also, the study recommends that proper credit risk management practices be put in place by banks. This is because poor credit risk practices are responsible for high levels of non-performing loans which ultimately and adversely affect the profits of commercial banks. Lastly, also, the study recommends that banks hold more liquid assets in periods of poor economic conditions. It is therefore advisable for bank’s management to pay the required attention to the liquidity management. Further studies should be carried out to include commercial banks not listed at the Nairobi Securities Exchange to establish whether they will have the same findings as those banks listed at the Nairobi Securities Exchange.
CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Bank profitability globally is of concern to various stakeholders which are creditors, owners, depositors, debtors, investors, regulators, bank managers and the government (Podder, 2012). However, the profitability of commercial banks is dependent on their liquidity. Commercial banks perform the major role of providing liquidity through their intermediation activities. Banks connect depositors and investors together by providing illiquid loans to investors (borrowers) where the liquid deposits kept by depositors are used to fund these loans. In performing this role, short term maturities are transformed by banks into long maturities so as to create funding liquidity for the investors while promoting the effective and efficient resources allocation in banking industry (Maaka, 2013). Due to this, banks are often characterized by maturity mismatch which causes instability for commercial banks in their roles as providers of liquidity upon depositors demand through deposit transactions, or the borrowers through loan application (Mwangi, 2014).

The banking industry in Kenya has over the years witnessed various changes and transformation which include service innovations which are majorly technology based. The sector is characterized by globalization forces which seek to create growth opportunities. Similarly, there is the challenge for managers of banks to sustain profitability in the face of this increasing competition (Ibe, 2013). The maturity transformation roles of banks of converting short term
deposits to long term loans brings about liquidity risk in the banking sector. It is hinged on the inability of banking institutions to fund assets increases and address their financial obligations in due time, without having related losses. This risk is known as the possibility that banking institutions will not be able to meet their obligations in the short run when they arise which is because their inability to efficiently liquidate their assets or their inadequate funding sources (Decker, 2010).

1.1.1 Liquidity Risk

Liquidity risk is the uncertainty emanating from the failure of a bank to meet up with its various debts agreement and other obligations as per agreement that is when they fall due as a result of an inability to efficiently convert its assets to cash. It refers to a firm’s inability to source for adequate fund as a result of exceptionally high liquidity transformation costs which affects the capital and fund of an institution which may be now or at the future. Lyambiko (2015) asserts that liquidity risk is a critical phenomenon for commercial banks due to two key reasons; first is attributed to the intermediation model of banks which has traditionally been applied, secondly, it is due to the increasing competitive forces in the banking sector and the financial sector at large which span from securities markets as well as non-banking institutions.

Liquidity risk refers to the probability that a bank will not be able to settle its obligations over a specified period of time (Drehmann & Nikolaou, 2009). It entails the risk emanating as a result of the difficulty of banks to fulfill their obligations when they arise without suffering unacceptable losses. Therefore, liquidity risk can impact negatively on both capital and earnings of banks therefore, it is a necessity for bank management to put in place measures that ensures stable availability of funds so as to address at reasonable costs the demands of providers and
borrowers in the future. Market risk and funding risks are used to determine the bank
vulnerability to liquidity risk. Decker (2010) put forward that there is the need to monitor
liquidity risk as part of an institutions risk management practices, while incorporating credit risk
and market risk so as to guarantee stability in the balance sheet of an institution and also the
dynamic management of liquidity risk. Similarly, Maaka (2013) notes that liquidity risk does not
only adversely impact on bank profitability alone but also on its reputation. As such, the delay in
the provision of funds to depositors will ultimately lead to loss of confidence on such banks by
depositors.

Liquidity crisis at one bank can easily spread to other banks resulting in bank runs. High levels
of liquidity held by a bank tend to reduce a bank’s profitability due to the forgone returns on
investments. On the other hand low liquidity levels exposes banks to liquidity stress with likely
consequences of being put under receivership and eventual liquidation (Lyambiko, 2015).
Notably the root causes of liquidity risk include, failures of banks to have adequate framework
for liquidity management, failure to adhere to the principles of liquidity risk management, failure
of the central bank supervisory function, managerial incentives that are not properly aligned with
the business risk tolerance and information asymmetries that exist within the financial system.

1.1.2 Profitability of the Commercial Banks listed at the Nairobi Securities Exchange

Bank profitability are assessed using fundamental measures which are return on equity (ROE),
net interest margins (NIM) and return on assets (ROA) which are traditionally indicated as a
function of the external and internal factors that are majorly influenced by the policy objectives
and decisions of bank managers. ROA is expressed as net income over a bank’s total assets while
ROE is regarded as the net income over shareholders equity and NIM is expressed as interest income minus interest expense over a bank’s total assets.

Due to competition from other financial institutions and mobile service providers, banks have loosened their rules and the regulations which have made it possible for loan approval in haste without proper assessment of the borrower (Olamide et al., 2015). Technology has also imposed another operational risk to the banks where robbery and attempted robbery without violence has seen many bank lose money (Komu, 2015; Oudia, 2015), money is stolen when in transit and fake documents are going through the bank processing system without knowledge. Not forgetting funds mismanagement by banks has resulted in a few banks being placed under receivership which include Dubai Bank and Imperial Bank in 2015. The table below shows the trends in Return on Equity of Kenya Commercial banks.

**Table 1.1 Trends in Return on Equity of Kenya Commercial Banks**

<table>
<thead>
<tr>
<th>Year</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>2015</th>
</tr>
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<tbody>
<tr>
<td>Profitability (ROE)</td>
<td>25.98%</td>
<td>23.10%</td>
<td>21.99%</td>
<td>20.94%</td>
<td>20.88%</td>
<td>17.39%</td>
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*Source: World Bank (2017)*

The trend in bank profitability as indicated in Table 1.1 has been declining over the years. Bank ROE in 2010 was 25.98%, it however decreased in 2011 to 23.10%. In 2012, 2013 and 2014 ROE of banks stood at 21.99%, 20.94% and 20.88% respectively. Also, the ROE declined to 17.39% in 2015 (World Bank, 2017). The continuous declining trend exhibited in the ROE of banks is a source of concern, this is because the financial intermediation carried out by banks is fueled by bank profits.
1.1.3 Nairobi Securities Exchange Listed Commercial Banks

Kenya has a banking sector which comprises of 43 commercial banks, the CBK being the regulatory body and 13 Micro-Financial Institutions. Fifteen out of the 43 commercial banks are foreign controlled and the remaining 28 of them are locally controlled as at December 2016 (Banking Sector Annual Reports, 2016). The industry is characterized by increasing competitive forces as each market player is striving to attain high profitability level.


1.2 Statement of the Problem

There has been a downward trend in the profitability of the commercial banks of Kenya as shown in the Table 1.1 ROE in 2010 was 25.98%, it however decreased in 2011 to 23.10%. In 2012, 2013 and 2014 ROE of banks stood at 21.99%, 20.94% and 20.88% respectively. Also, the ROE declined to 17.39% in 2015 (World Bank, 2017) and this has become a great concern because the major role of the financial intermediation such as issuing of credits is made possible by the bank profits. Therefore the banks are not able to perform this role effectively and efficiently.

Globally, commercial banks are fundamental in the allocation of economic resources of countries. These include but not limited to transferring funds from the possession of depositors to investors. Banks do this by generating the necessary income to offset their cost incurred in the
course of banking operations (Lyambiko, 2015). Also, the activities of banks are characterized by problems due to the fundamental role they play in short term deposit maturity transformation to maturity transformation of long-term loans which are exposed to liquidity risk. In such a scenario, banks are exposed to liquidity problems and the occurrence of such can frustrate bank customers which can ultimately impact negatively on the financial sector at large (Kiganda, 2014). Conversely, in a situation where banks have liquid assets in excess where they are non earning assets (for example deposits with non interest bearing and cash), can make the profits of banks suffer.

In 2008 global financial crisis brought about the benefits of regulating banks in order to curb against the situation of high risks resulting from banks statements imbalances. As such, every bank has to ensure it works towards achieving its set profits target while at the same time satisfying customers’ financial demands by keeping an optimum level of bank liquidity. Therefore, liquidity has significant influence bank profitability which is negative in the event of a mismatch between bank assets and liabilities (Mwangi, 2014). This situation may result in exposing an institution to financial losses. Liquidity risk evolve from the processes in the operations of banks. It could adversely impact on the overall bank earnings and capital (Kazeem, 2015).

(Kiganda, 2014) indicated that banks and other regulatory bodies are now highly vigilant to financial institutions’ liquidity positions. However, banks in developing countries notably Kenya still battle with issues relating to their level of profitability. Bank deposits are key as they are the lifeblood of any banking business. The operations of banks are majorly based on their deposits. Therefore, any form of financial disintermediation will result in a liquidity trap for banks which
will force them into borrowing funds from the apex or central bank as well as other forms of borrowing such as inter-bank borrowing which is usually more expensive (Malik, 2011).

Most studies on liquidity risk and profitability of banks were conducted for other countries other than Kenya. This study sought to ascertain the effect of liquidity risk on profitability of commercial banks listed at the NSE, Kenya. Specifically, the study established the effect of net loans holdings, asset quality and liquid assets holdings on profitability of listed commercial banks.

1.3 Objectives of the Study

This study was guided by the following objectives

1.3.1 General Objective

To establish the impact of liquidity risks on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.

1.3.2 Specific Objectives

The specific objectives of the study were to:

i. Determine the effect of net loan holdings on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.

ii. Determine the effect of asset quality on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.

iii. Determine the effect of liquid assets holdings to total assets on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.
1.4 Research Hypotheses

The hypotheses were:

H₀₁: Net loan holdings have no significant effect on profitability of commercial banks at listed at the Nairobi Securities Exchange, Kenya.

H₀₂: Asset quality has no significant effect on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.

H₀₃: Liquid assets holdings have no significant effect on profitability of commercial banks listed at the Nairobi Securities Exchange, Kenya.

1.5 Significance of the Study

Management of Commercial banks is expected to have advanced knowledge on liquidity risk and bank profitability in Kenya. This advanced knowledge will aid bank managers in formulating and implementing such important policies which will ensure high liquidity in commercial banks which will lead to increased revenues, thus giving the banks competitive edge.

The findings of this research are expected furnish the banking sector with key policy recommendations that will curb the issues of low bank profitability. Therefore, providing policy recommendations that will aid the government with possible suggestions to liquidity risk and profitability in Kenya commercial banks.

By relating liquidity risk variables which are Net Loan holdings, Asset Quality and Liquid Asset Holdings to profitability of commercial banks, the study would provide future researchers/scholars with an alternative measurement area which has little or no research within the banking context.
The result of the study will help prospective investors to make rational and more accurate decisions on where to invest their money based on liquidity risks.

1.6 Scope of the Study

The research examined the influence of liquidity risk (Net loans to Total Assets Ratio, Non-performing loans to Total Loans Ratio and Liquid assets to Total Assets Ratio) on the profitability of Kenya commercial banks listed on the Nairobi Securities Exchange. It focused on commercial banks which are listed in Nairobi Securities Exchange (NSE). The study analyzed the secondary data as published in the banks’ audited financial reports ranging from 2013 to 2017.

1.7 Limitations of the Study

The perceived challenge for the study was based on the type of data that was used which is secondary data, there are different data’s. As such the issue of data authenticity becomes a concern. In addressing this limitation, the researcher ensured that that the research data is extracted from reputable sources such as Central Bank of Kenya (CBK) and Kenya National Bureau of Statistics (KNBS).

1.8 Organization of the study

The project is based on the following segments: background, objectives, research significance, limitations and scope are presented in chapter one. Literature review which consists of, Theoretical Review, Empirical Review, and conceptual framework is contained in chapter two. Research methodology which consists of Research Design, Target Population, Empirical Model, Operationalization and Measurement of Variables, Sampling Design, Data collection
instruments, Data collection procedures, Data analysis and presentation, Diagnostic Tests and Research ethics are contained in the third chapter. The fourth chapter presented the analysis of research data and its interpretation. Lastly, the fifth chapter provided the summary, conclusion and recommendations of the research.
CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The review of empirical and theoretical, summary of research gaps and the conceptual framework are contained in chapter two of the study.

2.2 Theoretical Review

The research was guided by three theories which are Liquidity Preference Theory, Shift Ability Theory and Financial Intermediation Theory. The propositions of these theories support the relationship between the research variables.

2.2.1 Liquidity Preference Theory

This is a theory formed by Keynes (1936). The theory rests on the notion that the demands of an investor of higher rate of interest/premium for securities having long-term maturities is attributed to the high risk associated with them. This is due to the fact that holding all factors constant, cash and/or other highly liquid assets are preferred by investors. Therefore, more liquid investments are usually easier and faster to disposed off in the market for their full value. Liquidity preference theory asserts that short term securities have lower rates of interest as investors in the market are trading off less liquidity than they will do venturing into long-term or medium term securities.
Liquidity Preference Theory becomes vital to this research as it explains the rational of banks holding assets. Customers avoid banks characterized by high liquidity risk as they opt for assets that are highly liquid, they do this as they pile up the their cash in banks that are highly liquid (Bonfim & Kim, 2011). Therefore, the higher the liquidity of commercial banks the higher their profitability and overall performance. Nikolaou (2009) put forward that a link exists between liquidity risk and bank liquidity based on the notion that there is high preference by investors for liquidity. The demand for liquidity is based on three motive; transaction, precautionary and speculative motives.

2.2.2 Shift Ability Theory

Shift Ability Theory was proposed by Moulton (1918). This theory suggests that the liquidity of an institution is maintained when such institution holds assets which could be easily sold or converted to other investments for cash. This assertion contends that the liquidity level of banks is capable of improving if the banks are always in possession of assets to sell as this is good for the proper functioning of the banks. Therefore, the theory contends and recognizes that a shift ability, transferability or marketability of the assets of banks serves as a basis in ensuring their liquidity.

Shift Ability Theory is of the view that securities held by banks that are highly marketable or transferrable becomes a vital source of bank liquidity (Maaka, 2013). The theory was brought to prominence after global financial crisis of 2007 which led banks running into short runs where the interbank markets were marred by liquidity shortfall. Brunnetti, Fillipo and Harris (2011) put forward that the global crises exposed the inherent liquidity challenges faced by banks in the interbank market. Banks were however, not sure of the extent of liquidity problems on the
balance sheets of other banks but were simply not willing to lend those seeking to borrow without any substantial or provision of accommodations for any possible counterparty risks. Tirole (2010) pointed that banks may have challenges in obtaining the desired level of liquidity in periods of distress because the level of confidence in the market is likely to be adversely affected in such period while result in credit worthiness also invariably lacking in the market.

2.2.3 Stakeholders Theory

The theory was brought about Freeman (1984) who identifies that an institution is characterized by various stakeholders. The various stakeholder groups emerge from the institution and they are regarded as key components within the institution that ought to be considering and carried along. Freeman advocates for the re-engineering of the various theoretical perspectives within an institution which goes beyond the owner manager-employee relations and also recognizes the various groups of stakeholder. In this vein, Freeman (1984) who opined that stakeholders refer to individuals or groups who the achievement of organizational goals matter or is of importance to them. Freeman (1999) put forward that for institutions to be effective and efficient, they have to consider only those link that can impact on the organization but also those that the organization can affect. Therefore, a key component of an institution is stakeholder management which serves as a pragmatic concept in performance of organizations. Whatever, the nature and purpose of an organization is, the management of stakeholder relationships become key. As suggested by Sundaram and Inkpen (2004), stakeholder theory provides answers to the questions arising in an organization such as which stakeholder group(s) require and deserve more attention of management.
Stakeholder Theory is key as it provides the necessary framework for ascertaining an institution’s structure and operation that is in line with the complex needs and expectations of different stakeholders who are guided by various and in some cases different. Nevertheless, Sundaram and Inkpen (2004) posit that Stakeholders Theory provides the link between stakeholders’ expectation which ultimately determines the performance of firms. Furthermore, these authors argue the lack of empirical evidence which provides support on the linkage existing between stakeholders and performance of organizations. However, the identification of all the various stakeholders and their existing core values can sometimes be difficult or unrealistic tasks for management.

2.3 Empirical Review

This section comprises of empirical literature review which range from international and local studies. The empirical review of literature is based on liquidity risk and profitability.

2.3.1 Net loan Holdings and Profitability of Commercial Banks listed at the Nairobi Securities Exchange

Bonfim and Kim (2011) did a research on the liquidity effect on performance of bank in European and North American covering the time period 2002 to 2009. The study utilized panel data which was based on panel regression analysis. Results show that net loans to total assets positively and significantly affect performance of European and North American banks. However, the study was centered on European and North American banking performance. In addressing the contextual gap, the current study will be centered on commercial banks listed on
the NSE, Kenya. However, the study was centered on European and North American banks. This research focused on Kenyan banks.

Graham and Bordeleau (2010) carried out an empirical analysis on the relationship existing between liquidity and level of profitability. The research indicated on non linear relationship as bank profitability is improved in those banks holding higher level of liquid assets. Notably, there exist a level where having more liquid assets can be detrimental as it decreases bank profitability level. The estimation result of the research showed the relationship between liquid assets and profitability is dependent on the business model which adopted by banks and the risk emanating from funding market difficulties. Using a more traditional business model that is deposit and loan-based allows banks to maximize profitability with lower liquid assets level. The research was based on banks in Canada. The current empirical analysis was focused on Kenya commercial banks.

Ajibike and Aremu (2015) evaluated the influence of liquidity on banking performance in Nigeria. The analysis was aimed at ascertaining the role played by bank liquidity on its performance in the context of Nigeria. The enquiry was based on the GMM estimation methods based a panel of thirteen banks covering the period of 2004 - 2012. The study findings showed a negative relationship existing between bank net loans and its performance. The research conclusion was that the liquidity of a bank is significant in determining its performance. Based on the findings, they recommended that in order to achieve higher performance, banks should improve their liquidity level. The current study was on Kenyan unlike the previous study which was based on Nigerian banks.
Maaka (2013) carried out a study which was pegged on two objectives: To investigate the liquidity problems encountered by Kenya commercial banks and to ascertain the relationship which exist between liquidity risk of banks and their performance. The study incorporated a correlation research design with data being gathered between 2008 and 2012 from annual reports obtained from the CMA and NSE with a sample of 14 banks being analyzed. A regression model was developed with the dependent variable being PBT and the independent variables consisting of deposit, cash, liquidity gap and non-performing loans. The research findings established that NPL significantly affects performance of commercial banks. However, the research adopted ROA as a measure of performance. Considering the current study was focused on listed Kenyan commercial banks, the research adopted ROE in assessing profitability.

2.3.2 Asset Quality and Profitability of Commercial Banks Listed at the Nairobi Securities Exchange

Ibe (2013) did an analysis on the liquidity risk impact on the bank profitability in Nigeria. The study used 3 banks based on a random sample and data which ranged between 1995 - 2010. Using multiple regression model, the findings suggested that a bank’s asset quality has a significant effect to its profitability in the context Nigeria. However, the research was centered on commercial banks in Nigeria. Also, the study adopted profit after tax as a measure of profitability. In addressing this gap, the current study was focused on listed commercial banks in the Kenyan context where ROE was adopted as a measure of profitability.
Lyambiko (2015) conducted a study which was guided by two objectives: To determine the operational risks management practices and performance in the context of commercial banks in Tanzania and to identify the sources of operational risks exposures among commercial banks in Tanzania. The research used a descriptive research design where the study population was 36 licensed commercial banks as at 31 December 2013 with a sample of the 36 commercial banks being analyzed. Secondary data was from banks financial statements between 2009 and 2013. A regression model was developed with bank performance being measured by ROA and the independent variables consisting of credit risk, insolvency risk and operational efficiency. The research findings established that asset quality has a strong relationship with bank performance. However, the investigation was based on banks in the Tanzania context. Also, the study adopted ROA as a measure of financial performance.

Marozva (2015) did an empirical analysis the linkage between liquidity and performance banks in the context of South African banks for the period 1998-2014. The study employed the Autoregressive Distributed Lag (ARDL) approach and OLS methods. The results of the study indicated a significant effect of asset quality on NIM. The recommendation of the study was that it should not only be treated by banking institutions as a short-run phenomenon. However, the study was centered on South African banks where NIM was utilized to assess performance. This research was on commercial banks listed on the NSE, Kenya where ROE was adopted as a measure of profitability.
2.3.3 Liquid Assets Holdings and Profitability of Commercial Banks Listed at the Nairobi Securities Exchange

An empirical study was done by Bordeleau and Graham (2010) to ascertain the influence of liquid asset on bank profitability covering 55 banks in the U.S and also 10 banks in Canada for the period ranging from 1997 – 2009. The study used panel 2 step GMM. The findings of the research indicated a non-linear linkage existing between holdings of liquid asset and bank profitability as proxied by ROE. Profitability of banks improves as liquid asset holdings improves, however this is up to a certain level after which any further liquid asset increase in holdings will bring about declining profitability. Results show that liquid assets to total assets have a significant and positive influence on profitability. However, the study was centered on US and Canadian Banks.

Olagunju et al. (2011) did a research on liquid assets and performance of commercial banks in Nigeria. Operational efficiency was the independent variable of the study while performance measured using ROA was used as the criterion variable. Using a multiple regression approach, results showed that liquid assets have a positive and significant effect on bank. The research further concluded that in order to ensure the successful operations of banks and their survival, there should be effective and efficient management of liquidity management as illiquidity and excess liquidity of banks are the causes of financial diseases which potentially erodes bank profitability base banks which also hampers their quest for higher level of profitability.

Bonfim and Kim (2011) did a research on liquidity impact performance of European and North American banks for the period 2002-2009. The study utilized panel data which was based on
panel regression analysis. The results of the study show that liquidity (liquid assets holdings) has a positive and significant effect on European and North American banks performance. Notably, the study focused on the performance of European and North American banks. The research was based on commercial banks listed on the NSE, Kenya, thus, filling the contextual gap in literature.

Mwangi (2014) carried out an investigation whose main objective was to ascertain the influence of liquidity risk management on bank performance in the context of Kenya. A descriptive research design was adopted with the target population being the commercial banks listed as at 31 December 2013. Secondary data was obtained from published accounts of commercial banks which included income statement, statement of financial position and other disclosures between 2010 and 2013. A regression model was developed with bank performance being measured using the ROA whereas the independent variables were: liquid assets to total deposits, liquid assets to total assets, balances due to other banks /total assets and asset quality. The research findings showed that liquidity had a significant negative relationship with commercial bank performance. The study further suggested that holding more liquid assets as compared to total assets would lead to lower returns to commercial banks but the effect was not significant at 5%, holding more liquid assets as compared to total deposits would bring about lower returns for commercial banks.

Kimani, Mugo, Njeje and Otieno (2015) studied the liquidity risk management practices and performance of MFIs in Kenya. A survey research design was used in the study. One hundred and twenty eight workers selected among six MFIs in Kenya formed the target population of the study. Consequently, the sample was made up of ninety six workers which were drawn from the
population. The study used primary data collected using a questionnaire. Data was analyzed using multiple regression model. The study found out that Micro Finance the findings of the study established that liquid asset to total asset has a positive and significant effect on performance. However, the study was based on MFIs. In addressing the research gap, the current study was based on commercial banks in Kenya.

2.4 Summary of the Review of Literature and Research Gaps

The review of past literature provides various research gaps, these research gaps range from knowledge, contextual and conceptual research gaps. Past literature on liquidity risks and bank profitability were done in the context of developed and other developing countries other than Kenya.
<table>
<thead>
<tr>
<th>Author</th>
<th>Focus of the research</th>
<th>Findings</th>
<th>Research Gaps</th>
<th>Addressing Research Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bordeleau and Graham</td>
<td>Effect of liquidity on the profitability of banks for a sample of fifty five U.S and ten Canadian banks from 1997 to 2009.</td>
<td>Found liquid assets to total assets to have a significant positive impact on the profitability of commercial banks.</td>
<td>The study was centered on U.S and 10 Canadian banks.</td>
<td>The current study focused on commercial banks in Kenya.</td>
</tr>
<tr>
<td>Marozva (2015)</td>
<td>The relationship between liquidity and bank performance for South African banks</td>
<td>Found asset quality to have a significant relationship with bank performance of South African banks.</td>
<td>The study was centered on commercial banks in South Africa.</td>
<td>The current study focused on commercial banks in Kenya.</td>
</tr>
<tr>
<td>Lyambiko (2015)</td>
<td>The relationship between asset quality and financial performance of banks in the context of Tanzania</td>
<td>Found out that asset quality had a negative and significant relationship with financial performance of commercial banks.</td>
<td>The study was centered on commercial banks in Tanzania.</td>
<td>The current study was based on Kenyan banks.</td>
</tr>
<tr>
<td>Kimani et al. (2015)</td>
<td>The effect of liquidity on performance of microfinance institutions in Kenya</td>
<td>Found liquid assets holding to have a positive and significant effect on performance of microfinance institutions in Kenya.</td>
<td>However, the study was centered on MFIs in Kenya.</td>
<td>The current study was centered on commercial banks in Kenya.</td>
</tr>
<tr>
<td>Olagunju <em>et al.</em> (2011)</td>
<td>Liquid assets and performance of commercial banks in Nigeria</td>
<td>Results showed that liquid assets have a positive and significant effect on bank</td>
<td>Olagunju et al did a study which focused on the commercial banks in Nigeria</td>
<td>The current study focused on the Commercial banks listed at the Nairobi Securities Exchange</td>
</tr>
</tbody>
</table>

Source: Empirical Review, 2019

### 2.5 Conceptual Framework

The Conceptual Framework shows a diagrammatic interaction between the dependent and the predictor variables. Profitability denotes the dependent variable while net loan holdings, asset quality and liquid assets holdings serve as independent variables.
Figure 2.1 Conceptual Framework
CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction
This chapter comprises of the empirical methods used and spans from population, research design, analysis of research data and data collection.

3.2 Research Design
Research design comprises of the blueprint for collecting, measurement and estimation of data in a research (Cooper & Schindler, 2009). This research utilized causal research design. This research sought to ascertain causal effects therefore causal research design was appropriate for the study as it sought to establish the influence of liquidity risks on profitability of commercial banks in Kenya listed at the NSE.

3.3 Target Population
Study population is the organizations of interest in a study where research data will be sourced from. The study target population consisted all commercial banks in Kenya listed on the NSE for the 2013 to 2017. There are 11 commercial banks listed on the NSE Kenya as at December of 2017, thus, the target population of the study (Appendix III). This is to ensure that the data is available for the banks under the study.
3.4 Sampling Design

The research was based on a census sampling design as it focused on all listed commercial banks in Kenya from 2013 to 2017 which are 11 in number. According to Mugenda and Mugenda (2011) census approach is utilized in a research where the population of interest is small.

3.5 Empirical Model

Panel regression model was used where bank profitability was then expressed as a function of loan to total assets, asset quality and liquid asset to total assets.

\[ Y_{it} = \beta_0 + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it} \]

Key:

\( Y_{it} \) – Bank Profitability

\( \beta_0 \) - Constant

\( X_{1it} \) – Net Loan Holdings of bank i at time t

\( X_{2it} \) – Asset Quality of bank i at time t

\( X_{3it} \) – Liquid Asset Holdings of bank i at time t

\( \beta_1, \beta_2, \beta_3 \) = Regression coefficients

\( \epsilon_{it} \) = Error term
3.6 Operationalization and Measurement of Variables

The predictor research variables include liquidity risks (Net Loan Holdings, asset quality and Liquid Asset Holdings). As such, ROE which is a measure of profitability constitute the dependent variable. The table below shows the operationalization of the variables.

Table 3.1: Operationalization and Measurement of Variables

<table>
<thead>
<tr>
<th>Variable</th>
<th>Type</th>
<th>Operationalization</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Profitability</td>
<td>Dependent Variable</td>
<td>Return on shareholders’ wealth</td>
<td>Earnings Before Interest and Tax/Shareholders funds</td>
</tr>
<tr>
<td>Net Loans Holdings</td>
<td>Independent Variable</td>
<td>Net Loans to Total Assets</td>
<td>Net Loans to Total Assets</td>
</tr>
<tr>
<td>Asset Quality</td>
<td>Independent Variable</td>
<td>Non-Performing Loans</td>
<td>Non Performing Loans/total loans</td>
</tr>
<tr>
<td>Liquid Asset Holdings</td>
<td>Independent Variable</td>
<td>Liquid Asset to Total Assets</td>
<td>Liquid Asset / Total Assets</td>
</tr>
</tbody>
</table>

Source: (Researcher, 2019)
3.7 Data Collection Instrument

The research used secondary panel data which was extracted from the financial statements of the 11 commercial banks in Kenya, the Kenya National Bureau of Statistics and the Central Bank of Kenya (CBK). This was done using a document review guide in appendix I. The period covered was 2013 up to 2017.

3.8 Data Collection Procedure

Data collection entails the sourcing of research data for the purposes of analysis and making conclusions and recommendations. An approval letter was given by the Graduate School of Kenyatta University which was used in obtaining a research permit from NACOSTI. Thus, the research permit was utilized in the collection of data.

3.9 Data Analysis and Presentation

Research data is analyzed in order to transform it to usable for the purpose of making conclusions and policy recommendations. Also, it serves as a basis for suggestions for further research. Therefore, the data analysis of this study was done using descriptive and inferential statistics. Upon collection of data, analysis was performed. Descriptive analysis which includes frequency distributions, mean and standard deviations was presented while panel regression analysis was done to ascertain if the independent variables (liquidity risk) significantly predict the dependent variable which is; bank profitability.
3.10 Diagnostic Tests

Diagnostic tests are carried out to ensure that the basic assumptions of panel regression analysis are met before carrying out the regression analysis. The study carried out multicollinearity test as shown in 3.10.1.

3.10.1 Multicollinearity Test

Diagnostic test for multicollinearity was carried out to assess the level of correlation between research variables. Multicollinearity is a problem whereby the predicting variables in a study are either moderately or highly correlated. In this case, the correlation matrix was used to assess the level of multicollinearity. In line with Greene (2008), a correlation coefficient (r) of 0.8 or -0.8 indicates the presence of high multicollinearity. In such a situation, the affected variable was excluded in the regression analysis.

3.11 Research Ethics.

Research ethics refers to professional rules and standards that are expected to be adhered by a researcher in a research (Mugenda & Mugenda, 2011). It entails not engaging in acts such as falsification and fabrication. In addition, authors of research works which were utilized in the research were acknowledged duly. Also, the research conformed to rules and all regulations binding research in Kenya by obtaining a letter of authorization and also the NACOSTI permit to enable carry out the research.
4.1 Introduction

Chapter four presents descriptive analysis of the study, multicollinearity test, the test for fixed effect of random effect, Regression analysis, hypotheses testing and discussion of the findings, and summary of the hypotheses testing. This is guided by the specific objectives of the study.

4.2 Descriptive Analysis

Descriptive analysis was carried out to provide the basic feature of the study variables. The analysis provided statistics such as mean, number of observation, standard deviation minimum and maximum values. Table 4.1 provides the descriptive statistics of the study.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Obs</th>
<th>Mean</th>
<th>Std.Dev.</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>55</td>
<td>0.2675</td>
<td>0.1148</td>
<td>0.0000</td>
<td>0.5592</td>
</tr>
<tr>
<td>Netloans</td>
<td>55</td>
<td>0.5926</td>
<td>0.0985</td>
<td>0.3182</td>
<td>0.8148</td>
</tr>
<tr>
<td>AssetQuality</td>
<td>55</td>
<td>0.0810</td>
<td>0.0769</td>
<td>0.0126</td>
<td>0.4501</td>
</tr>
<tr>
<td>LiquidAssets</td>
<td>55</td>
<td>0.1533</td>
<td>0.0836</td>
<td>0.0121</td>
<td>0.3979</td>
</tr>
</tbody>
</table>

*Source: Research data (2019)*

The statistics from the descriptive analysis as depicted in Table 4.1 shows that the total number of observation for each variable is 55. ROE has a mean of 0.2675 and a standard deviation of 0.1148 which implies that the data on ROE has been relatively stable. The minimum and maximum values for ROE are 0.000 and 0.5592 respectively. Net loan holdings has a mean and
standard deviation of 0.5926 and 0.0985 respectively. The minimum value for net loans holdings is 0.3182 while the maximum value is 0.8148.

Asset quality has a mean of 0.0810 and a standard deviation of 0.0769 an indication that asset quality had not been characterized by high volatility over the study period. Also, asset quality has a minimum value of 0.0126 and a maximum value of 0.4501. Lastly, liquid assets holdings are shown to have a mean and standard deviation of 0.1533 and 0.0836 respectively. The minimum and maximum values for liquid assets holdings are 0.0121 and 0.3979 respectively.

4.3 Multicollinearity Test

Multicollinearity is regarded as a scenario where the independent variables are highly correlated. To assess the level of multicollinearity, the correlation matrix was used. Results are presented in table 4.2 as shown below.
Table 4.2: Correlation Matrix

<table>
<thead>
<tr>
<th></th>
<th>ROE</th>
<th>Net Loans</th>
<th>Asset Quality</th>
<th>Liquid Assets</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROE</td>
<td>1.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Loans</td>
<td>0.0375</td>
<td>1.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.7857</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asset Quality</td>
<td>-0.4225</td>
<td>-0.5484</td>
<td>1.0000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.0013</td>
<td>0.0000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liquid Assets</td>
<td>-0.1381</td>
<td>-0.2958</td>
<td>-0.1252</td>
<td>1.0000</td>
</tr>
<tr>
<td></td>
<td>0.3148</td>
<td>0.0283</td>
<td>0.3624</td>
<td></td>
</tr>
</tbody>
</table>

Source: Research Data (2019)

Table 4.2 presents the results of the multicollinearity test which was carried out using the correlation matrix in line with Greene (2008). The correlation between net loans holdings and ROE was not significant with Correlation Coefficient (r) of 0.0375 and p-value being 0.7857. The correlation between asset quality and ROE was significant with Correlation Coefficient (r) of -0.4225 and p-value of 0.0013. Furthermore, the correlation between liquid assets holdings and ROE was found not to be significant with Correlation Coefficient (r) -0.1381 and p-value 0.3148.

Greene (2008) indicated that a pair of variables having a correlation coefficient of 0.8 or -0.8 for instance Coefficient of Determination (r²) of 64% or more implies the presence high level of multicollinearity therefore, the variables are highly correlated. In this case, net loans holdings, asset quality and liquid asset holdings have a coefficient of correlation (r) of 0.0375, -0.4225 and 0.1381 respectively. Therefore, none of the correlation coefficient exceeds 0.8 or-0.8, an indication that there is no problem of multicollinearity.
4.4 Test for Fixed Effect of Random Effect

The test for the selection of fixed effect or random effect model was carried out using the hausman test. Based on the null hypothesis, the preferred model is random effect while the alternative hypothesis favours the fixed effect model. Therefore, a p-value of less than 0.05 implies that the null hypothesis is rejected therefore the preferred model is fixed effect model. Conversely, a p value above 0.05 implies that the null hypothesis is not rejected and the random effect model is to be used. Table 4.3 presents the results of the hausman test.

Table 4.3: Hausman Test

<table>
<thead>
<tr>
<th></th>
<th>(b) Fixed</th>
<th>(B) Random</th>
<th>(b-B) Difference</th>
<th>Sqrt(diag (V_b-V_B) ) S.E</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Loans</td>
<td>-0.4861117</td>
<td>-0.5357669</td>
<td>0.496552</td>
<td>0.1401148</td>
</tr>
<tr>
<td>Asset Quality</td>
<td>-0.5544599</td>
<td>-0.85755011</td>
<td>0.3030412</td>
<td>0.1068096</td>
</tr>
<tr>
<td>Liquid assets</td>
<td>-0.8978244</td>
<td>-0.5646313</td>
<td>-0.3331931</td>
<td>0.3059969</td>
</tr>
</tbody>
</table>

b = consistent under Ho and Ha; obtained from xtreg

B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

\[
\text{Chi2 (3)} = (b-B) \cdot [(V_b-V_B)^{-1}] (b-B)
\]

\[
= 11.88
\]

Prob>chi2 = 0.0078

Source: Research data (2019)
The results from the hausman test indicated a p-value of 0.007 obtained, which is notably below the threshold of 0.05. As such, the null hypothesis that the preferred model is random effect model was rejected; therefore, the fixed effect model was utilized in the study.

### 4.5 Regression Analysis

The regression analysis is based on panel regression where the predictor variables were regressed against the dependent variable Profitability of Commercial Banks Listed at the NSE, Kenya.

**Table 4.4: Regression Results**

<table>
<thead>
<tr>
<th>ROE</th>
<th>Coeff</th>
<th>Std. Err</th>
<th>T</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net Loans</td>
<td>-0.4861117</td>
<td>0.2366918</td>
<td>-2.05</td>
<td>0.046</td>
</tr>
<tr>
<td>Asset Quality</td>
<td>-0.5544599</td>
<td>0.2508954</td>
<td>-2.21</td>
<td>0.033</td>
</tr>
<tr>
<td>Liquid Assets</td>
<td>-0.8978244</td>
<td>0.3718678</td>
<td>-2.41</td>
<td>0.020</td>
</tr>
<tr>
<td>_cons</td>
<td>0.7381297</td>
<td>0.1576834</td>
<td>4.68</td>
<td>0.000</td>
</tr>
<tr>
<td>Observations</td>
<td>55</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R- sq: within</td>
<td>0.2239</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F statistics</td>
<td>3.94</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prob &gt; chi2</td>
<td>0.0000</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Source (Research data, 2019)*

The panel regression analysis indicates that net loans holdings have a negative and significant effect on the profitability of commercial banks with $\beta = 0.486$ and $p=0.046$. The results further reveal that unit increase in net loans holdings bring about a 0.486 decrease in the profitability of
banks. Similarly, with respect to asset quality and profitability of commercial banks, the regression output revealed that the effect of asset quality on profitability is negative and significant $\beta = 0.554$ and $p=0.033$. The results indicated that a unit increase in asset quality reduces bank profitability as measure using ROE by 0.554.

On the effect of liquid assets holdings on profitability of commercial banks, the findings from the regression output indicated an inverse and significant effect of liquid assets holdings on profitability of commercial banks Listed on the Nairobi Security Exchange $\beta = 0.898$ and $p=0.020$. Findings further indicate that a unit increase in liquid assets holdings leads to a decrease in profitability of listed banks by 0.898. The findings also, indicated that the $R^2$ is 0.2239, implying that the predictor variables collectively explain 22.29% of the variations in profitability. The constant ($\beta_0$) is 0.738, implying that in the absence of the predictor variables, the value of profitability is 0.738. The regression model is also significant with p-value of 0.0147.

As per the results above, the estimated model was as shown below:

$$Y_{it} = 0.738 - 0.486X_{1it} - 0.554X_{2it} + 0.898X_{3it} + 0.846\epsilon_{it}$$

Where;

$Y = $ Profitability of Commercial Banks

$X_1 = $ Net loans Holdings (Net Loans to Total Assets)

$X_2 = $ Asset Quality (NPL to Total Loans)

$X_3 = $ Liquid Assets Holdings (Liquid Assets to Total Assets)
4.6 Hypotheses Testing and Discussion of the Findings

This section presents how the study hypotheses were tested and the discussion on the findings therein. The hypotheses testing are in line with the specific objectives of the study.

4.6.1 Net Loans Holdings and Profitability of Commercial Banks Listed at the NSE, Kenya

The first objective of the study was to examine the effect of net loans holdings on Profitability of Commercial Banks Listed at the NSE, Kenya.

The first hypothesis tested was:

\[ H_{01}: \text{Net loan holdings have no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya.} \]

The hypothesis on the effect of net loans holdings on profitability was tested using panel regression analysis. The criterion for the hypothesis testing is to reject the null hypothesis if \( p<0.05 \), alternatively, accept null hypothesis is not rejected if \( p>0.05 \). The regression results depicted in Table 4.4 indicates net loans holdings having a \( p \)-value of 0.046<0.05, therefore the null hypothesis was rejected a 5 percent significance level. The findings show that net loans holdings have a negative and significant effect on the profitability of commercial banks Listed at the NSE, Kenya. The significant effect of net loans holdings can be attributed to the fact that net loans to total assets is a ratio which shows how much of a bank’s total assets is tied up in loans. As such, the higher the net loans to total assets ratio, the more illiquid banks are which ultimately bring about less profitability for banks.
The findings of the study on the effect of net loans holdings on profitability of commercial banks are in agreement with the findings by Maaka (2013) and Ajibike and Aremu (2015) who found a negative and significant effect of net loan holdings on profitability of banks in the context of Kenya and Nigeria respectively. On the contrary, the findings of the study are at variance with that of Bonfim and Kim (2011) who found a positive and significant effect of net loans to total assets on performance of banks, case of European and North American banks. The variations in research findings can be attributed to the different contexts of the current study and that of Bonfim and Kim which was centered on European and North American banks. Notably, European and North American banks are situated in developed economies unlike that of Kenya which are for developing economies. Therefore, different countries are characterized by different economic conditions, thus the variations in research findings.

4.6.2 Asset Quality and Profitability of Commercial Banks Listed at the NSE Kenya

The second objective of the study was to ascertain the effect of asset quality on Profitability of Commercial Banks Listed at the NSE, Kenya.

The second hypothesis tested was:

\( H_{02}: \text{Asset quality has no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya.} \)

The hypothesis on the effect of asset quality on profitability was tested using panel regression analysis. The threshold for the test is to reject the null hypothesis if \( p<0.05 \), alternatively, accept null hypothesis is not rejected if \( p>0.05 \). The findings from regression analysis as indicated in Table 4.4 revealed that asset quality has a \( p \)-value of 0.033<0.05. As such, the null hypothesis
was rejected a 5 percent significance level. The findings show that asset quality has an inverse and significant effect on the profitability of commercial banks Listed at the NSE, Kenya. The negative and significant effect of asset quality on profitability of banks can be linked to the notion asset quality was depicted by the ratio of non-performing loans to total loans. Therefore, the profitability of commercial banks is largely from the loans granted to customers or borrowers, the higher the non-performing loans, the lower the profits generated by banks.

The findings of the study are consistent with the findings by Ibe (2013), Lyambiko (2015) Marozva (2015) who also found a negative and significant effect of asset quality on profitability of Nigerian banks, Tanzanian banks and South African banks respectively. Thus, upholding the view that higher levels of non-performing loans to total loans ratio leads to the depletion of bank profitability.

4.6.3 Liquid Asset Holdings and Profitability of Commercial Banks Listed at the NSE Kenya

The third objective of the study was to assess the effect of liquid assets holdings asset quality on Profitability of Commercial Banks Listed at the NSE, Kenya.

The third hypothesis tested was:

\( H_0: \text{Liquid assets holdings have no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya.} \)

The hypothesis on the effect of liquid assets holdings on profitability of commercial banks Listed at the NSE, Kenya was tested using panel regression analysis. The criterion for the hypothesis testing is to reject the null hypothesis if \( p<0.05 \), alternatively, accept null hypothesis is not rejected if \( p>0.05 \). The regression output as shown in Table 4.4 revealed that liquid assets
holdings have a negative and significant effect of profitability of listed banks in Kenya with a p-value of 0.020<0.05, therefore the null hypothesis was rejected a 5 percent significance level.

The negative and significant effect of liquid assets holdings on profitability of commercial banks can be linked to the notion that though profitability is improved when commercial banks have some liquid assets, holding too much of it depletes the profits of banks. Holding too liquid assets may also have significant costs in terms of reduced bank profits as banks with highly liquid assets may have lower income since liquid assets are less risky assets, therefore, they generate lower returns (Mwangi, 2014). Notably, a bank’s retained earnings serves as a key source of capital generation, as such low profits in turn prevents the banks from extending and expanding more credit in the economy (Bordeleau & Graham, 2010).

The findings of the study with respect to the effect of liquid assets holdings on profitability of commercial banks Listed on the NSE, Kenya is consistent with the findings by Mwangi (2014) who also carried out an investigation on commercial banks listed at the NSE, Kenya. However, the findings of the study on liquid assets holdings and profitability are at variance with the findings by Bordeleau and Graham (2010); Bonfim and Kim (2011) and Kimani et al. (2015) who found a positive and significant effect of liquid assets holdings on profitability of banks.

The variations in the empirical findings by these studies can be attributed to the contexts of these studies. Bordeleau and Graham (2010) was centered on banks in United States and Canada, Bonfim and Kim (2011) focused on European and North American banks, while Kimani et al. (2015) was centered on MFIs in Kenya where the data was based on a questionnaire. These therefore, provide possible reasons for the variations in research findings of the current study and previous studies.
4.7 Summary of Hypotheses Testing

This section presents the summary of hypotheses testing which includes the specific objectives, hypotheses, rule, threshold and conclusion.

Table 4.8: Summary of Hypotheses

<table>
<thead>
<tr>
<th>No</th>
<th>Objective</th>
<th>Hypotheses</th>
<th>Rule</th>
<th>P-value</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>To examine the effect of net loans holdings on Profitability of Commercial Banks Listed at the NSE, Kenya.</td>
<td>H$_{01}$: Net loans holdings have no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>Reject H$_{01}$ if p-value &lt;0.05</td>
<td>P&lt;0.056</td>
<td>Net loans holdings have a significant effect on Profitability of Commercial Banks Listed on the NSE, Kenya</td>
</tr>
<tr>
<td>2</td>
<td>To ascertain the effect of asset quality on Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>H$_{02}$: Asset quality has no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>Reject H$_{02}$ if P-value &lt;0.05</td>
<td>P&lt;0.05</td>
<td>Asset quality has a significant effect on Profitability of Commercial Banks Listed on the NSE, Kenya</td>
</tr>
<tr>
<td>3</td>
<td>To assess the effect of liquid assets holdings on Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>H$_{03}$: Liquid assets holdings have no significant effect on Profitability of Commercial Banks Listed at the NSE, Kenya</td>
<td>Reject H$_{03}$ if p-value &lt;0.05</td>
<td>P&lt;0.05</td>
<td>Liquid assets holdings have a significant effect on Profitability of Commercial Banks Listed on the NSE, Kenya</td>
</tr>
</tbody>
</table>

Source: Research data (2019)
CHAPTER FIVE

SUMMARY, CONCLUSION AND POLICY IMPLICATIONS

5.1 Introduction

Chapter five presents the summary, conclusions and recommendations of the study. These are presented in line with the objectives and findings of the study.

5.2 Summary of the Study

Liquidity risk is dominant in the activities of commercial banks as a result of the nature of their operations. The profitability of commercial banks is dependent on the major roles of credit creation performed by these banks. However, the provision of credit by commercial banks is accompanied by liquidity risks. The research sought to ascertain liquidity risk effect on profitability of listed commercial banks at the NSE, Kenya. In line with this, the specific objective was to evaluate the effect of net loan holdings, asset quality and liquid assets holdings on profitability of listed commercial banks at the NSE, Kenya.

The study was anchored on Liquidity Preference Theory, Shift Ability Theory and Financial Intermediation Theory to provide underpinning for the research. The research adopted causal research design where the study population comprised of all the 11 listed commercial banks on the NSE, Kenya. The analysis of research data was based on descriptive analysis and panel regression analysis for the data analysis of the research.
5.2.1 Net Loan Holdings

On the effect of net loan holdings on profitability, the study established that net loans holdings have a negative and significant effect on the profitability of commercial banks Listed on the NSE, Kenya.

5.2.2 Asset Quality

On the effect of asset quality and profitability of commercial banks listed, the research revealed a negative and significant effect of asset quality on profitability of Commercial Banks Listed at the NSE, Kenya.

5.2.3 Liquid Asset Holdings

With respect to the effect of liquid assets holdings on profitability of commercial banks, the study established a negative and significant effect of liquid assets holdings on profitability of commercial banks Listed on the Nairobi Security Exchange, Kenya.

5.3 Conclusion

The conclusion of the research is guided by the findings of the study. The findings of the study are in line with the specific objectives of the study. The study found a negative and significant effect of net loans holdings on profitability of Commercial Banks Listed at the NSE, Kenya. Therefore, the study concluded that increase ratio of net loans to total assets is detrimental to the profitability of banks. The profitability of commercial banks is hampered by high levels of net loans.
Secondly, on the effect of asset quality and profitability of Commercial banks, the study concluded that higher ratio of non performing loans to total loans inversely affects the profitability of banks. Non performing loans are written off against bank profits, therefore, the higher the proportion of non performing loans to total loans, the more the depletion of the profitability of banks.

Lastly, on the effect of liquid assets holdings, the study found a negative and significant effect of liquid asset holdings on profitability of Commercial Banks Listed at the NSE, Kenya. Therefore, the study concluded that increase level of liquid assets especially highly liquid assets brings about the depletion of the profitability level of Commercial Banks Listed at the Nairobi Securities Exchange, Kenya.

5.4 Policy Implications and Recommendations

The policy recommendations of the study are informed by the research findings which revealed that all the three independent variables that is liquidity risk factors significantly impact on the profitability of Commercial Banks Listed at the NSE, Kenya. The study concluded that net loans holdings have a negative and significant effect on the profitability of Commercial Banks Listed at the NSE, Kenya. Therefore, the study recommends that banks should avoid having a large proportion or too much of their total assets in loans as this makes the bank illiquid, thereby hampering its profitability level.

The study concluded that asset quality significantly and inversely affects the profit ability of Commercial Banks Listed at the NSE, Kenya. In line with this finding, the study recommends that proper credit risk management practices be put in place by banks. This is because poor credit
risk practices are responsible for high levels of non performing loans which ultimately and adversely affect the profits of commercial banks.

Lastly, the study concluded that liquid assets holdings have a negative and inverse effect on the profitability level of Commercial Banks. The study notes that though liquid assets attract some returns to commercial banks, too much of it depletes the profitability level of banks. Therefore, the study recommends that banks avoid holding too much liquid assets as the highly liquid assets are associated with lower returns than risky assets. As such, the opportunity cost of having too much liquid assets outweighs the return it generates. Therefore, optimum liquid assets to total assets ratio is recommended. Also, the study recommends that banks hold more liquid assets in periods of poor economic conditions. It is therefore advisable for a bank’s management to pay the required attention to the liquidity management.
References


APPENDICES

Appendix I: Data Collection Guide

<table>
<thead>
<tr>
<th>Year</th>
<th>Profitability</th>
<th>Net Loans Holdings</th>
<th>Asset Quality</th>
<th>Liquid Asset Holdings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td></td>
<td></td>
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<tr>
<td>2017</td>
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# Appendix II: Research Study Work Plan

<table>
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<tr>
<th>Month</th>
<th>Activity</th>
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<tr>
<td>January 2018</td>
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</tr>
<tr>
<td>September 2018</td>
<td>Writing of proposal</td>
</tr>
<tr>
<td>October 2018</td>
<td>Defence.</td>
</tr>
<tr>
<td>October 2018-January 2019</td>
<td>Defence corrections and field work</td>
</tr>
<tr>
<td>February 2019 – April 2019</td>
<td>Analysis of data, Interpretation and Project Submission</td>
</tr>
<tr>
<td>July 2019</td>
<td>Graduation</td>
</tr>
</tbody>
</table>
Appendix III: List of Commercial Banks Listed in the Nairobi Securities Exchange

Housing Finance Group Limited

KCB Group Ltd

Co-operative Bank of Kenya

Barclays Bank Ltd

I&M Holdings Limited

CFC Stanbic Holdings Ltd

NIC Group plc

Equity Group Holdings

National Bank of Kenya Ltd

Standard Chartered Bank Ltd

Diamond Trust Bank Kenya Limited

(Capital Markets Authority, 2017).
Appendix IV: Letter of approval of Research Project Proposal.

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

FROM: Dean, Graduate School

TO: Maina Stephen Muthoga
C/o Accounting and Finance Dept.

DATE: 12th March, 2019

REF: D53/37603/2016

SUBJECT: APPROVAL OF RESEARCH PROJECT PROPOSAL

This is to inform you that Graduate School Board at its meeting of 6th March, 2019 approved your Research Project Proposal for the M.B.A Degree Entitled, “Liquidity Risks and Profitability of Commercial Banks Listed on the Nairobi Securities Exchange, Kenya”.

You may now proceed with your Data Collection, Subject to Clearance with Director General, National Commission for Science, Technology and Innovation.

As you embark on your data collection, please note that you will be required to submit to Graduate School completed Supervision Tracking Forms per semester. The form has been developed to replace the Progress Report Forms. The Supervision Tracking Forms are available at the University's Website under Graduate School webpage downloads.

Thank you,

HAREM TISABORE
FOR DEAN, GRADUATE SCHOOL

c.c. Chairman, Accounting and Finance.

Supervisors:

1. Dr. Charity Njoka
C/o Department of Accounting and Finance
Kenyatta University
Appendix V: University Research Authorization.

KENYATTA UNIVERSITY
GRADUATE SCHOOL

E-mail: dean-graduate@ku.ac.ke
Website: www.ku.ac.ke

P.O. Box 48844, 00100
NAIROBI, KENYA
Tel. 8710901 Ext. 57530

Our Ref: D53/37603/2016

DATE: 12th March, 2019

Director General,
National Commission for Science, Technology
and Innovation
P.O. Box 30623-00100
NAIROBI

Dear Sir/Madam,


I write to introduce Maina Stephen Muthoga who is a Postgraduate Student of this University. The student is registered for M.B.A degree programme in the Department of Accounting and Finance.


Any assistance given will be highly appreciated.

Yours faithfully,

Elishiba Kimani
AG. DEAN, GRADUATE SCHOOL
Appendix VI: NACOSTI Authorization.

NATIONAL COMMISSION FOR SCIENCE, TECHNOLOGY AND INNOVATION

Ref: No. NACOSTI/P/19/81958/28994
Date: 7th May 2019

Stephen Muthoga Maina
Kenyatta University
P.O. Box 43844-00100
NAIROBI.

RE: RESEARCH AUTHORIZATION

Following your application for authority to carry out research on “Liquidity risks and profitability of commercial banks listed in the Nairobi Securities Exchange, Kenya.” I am pleased to inform you that you have been authorized to undertake research in All Counties for the period ending 3rd May, 2020.

You are advised to report to the County Commissioners and the County Directors of Education, All Counties before embarking on the research project.

Kindly note that, as an applicant who has been licensed under the Science, Technology and Innovation Act, 2013 to conduct research in Kenya, you shall deposit a copy of the final research report to the Commission within one year of completion. The soft copy of the same should be submitted through the Online Research Information System.

CHARITY MUSEMBI
FOR: DIRECTOR-GENERAL/CEO

Copy to:

The County Commissioner
All Counties.

The County Director of Education
All Counties.
Appendix VII: NACOSTI Licence.

This is to certify that:
MR. STEPHEN MUTHOGA MAINA
of KENYATTA UNIVERSITY, 71-1000
THIKA, has been permitted to conduct
research in All Counties

on the topic: LIQUIDITY RISKS AND
PROFITABILITY OF COMMERCIAL BANKS
LISTED IN THE NAIROBI SECURITIES
EXCHANGE, KENYA

for the period ending:
3rd May, 2020

Applicant's Signature

Permit No.: NACOSTI/P/19/81958/28994
Date Of Issue: 6th May, 2019
Fee Received: KSh 1000

Director General
National Commission for Science,
Technology & Innovation

THE SCIENCE, TECHNOLOGY AND
INNOVATION ACT, 2013

The Grant of Research Licences is guided by the Science,
Technology and Innovation (Research Licensing) Regulations, 2014.

CONDITIONS

1. The License is valid for the proposed research, location and
   specified period.
2. The License and any rights thereunder are non-transferable.
3. The Licensee shall inform the County Governor before
   commencement of the research.
4. Excavation, filming and collection of specimens are subject to
   further necessary clearance from relevant Government Agencies.
5. The Licensee does not give authority to transfer research materials.
6. NACOSTI may monitor and evaluate the licensed research project.
7. The Licensee shall submit one hard copy and upload a soft copy
   of their final report within one year of completion of the research.
8. NACOSTI reserves the right to modify the conditions of the
   License including cancellation without prior notice.

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Serial No.A 24515

CONDITIONS: see back page