FIRM SPECIFIC FACTORS AND FINANCIAL STABILITY OF COMMERCIAL BANKS IN KENYA

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DECLARATION

This dissertation is my original work and has not been presented for a degree in any other University

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ABSTRACT

Globally, banks play an important role in the flow of resources from deficit to surplus spenders through intermediation for the enhancement of economic general wellbeing. Commercial banks perform significantly in capital formation as they offer wide range of services for productive ventures and people. These banks are spread across Kenya with each competing for customers' deposits toward solidification of the banks for effective and efficient service delivery within and outside the economy. These banks extend credit facilities to both individuals and businesses thereby ensuring the financing of other economic sectors. Despite the function performed by these commercial banks in economic stability, they have performed below expectation with some of the banks vulnerable to risk associated with financial performance and hence affecting their stability which has raised concerns from different stakeholders in the sector. Therefore, this research seeks to establish the link between firm specific factors and commercial banks financial stability in Kenya. In specific terms, the investigation evaluated the effect of capital adequacy, operational efficiency, credit size and earnings on Kenya's commercial banks' financial stability. As such the study was predicated on buffer capital, efficiency structure and financial intermediation hypotheses. The investigation employed explanatory design. The research target population comprised of forty Kenyan commercial banks which was arrived at using census approach. Secondary data was sourced from audited banks' annual reports with the help of a secondary data review guide. Analysis of data was done using descriptive statistics and linear regression techniques with various diagnostic tests application. Ethical norms were adhered to so as to ensure the quality of the study outcome. The study made several conclusions based on the study findings. The study found that capital adequacy has no significant effect on financial stability of commercial banks in Kenya. The study found that operational efficiency has no significant effect on financial stability of commercial banks in Kenya. It was established that credit size has significant effect on financial stability of commercial banks in Kenya. The study found that earnings has significant effect on financial stability of commercial banks in Kenya. It was recommended that lending activities should be done with caution. Proper credit risk management system should be put in place which will help in assessing the credit worthiness of borrowers, analyze their repayment capabilities while also monitoring the progress of projects which loans were collected for. The study f recommended that banks should strive towards increasing their assets holding while applying strategies geared towards improving earnings alongside as these will in turn bring about improvements in the financial stability of Commercial Banks in Kenya. The study is of the suggestion that additional empirical researches can be done on listed commercial banks as well as non listed commercial banks in Kenya. This will provide basis for having comparisons of the firm specific factors and financial stability relationships in the context of commercial banks in Kenya. Additional studies can be done focusing of Insurance firms which are also important players in the financial sector. Further studies can as well be carried out on Microfinance Banks in Kenya.

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DEDICATION

This research work is dedicated to my husband Martin, my children Joshua & Joseph and parents Mr. & Mrs. Stephen for their limitless and unconditional love that has made me grow strong and become a better person.

All the beautiful friends and souls around me whose prayers and selflessness has kept me going when it seemed that there is no light at the end the tunnel.

Thank you very much.

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ABBREVIATIONS AND ACRONYMS

Bn	Billion
CA	Capital Adequacy
CBK	Central Bank of Kenya
CLRM	Classical Linear Regression Model
CUE	Commission for University Education
FC	Firm Characteristics
GMM	Generalized methods of moments
KShs	Kenya Shillings
LAR	Loan to Assets Ratio
NACOSTI	National Commission for Science, Technology, and Innovation
NIM	Net Interest Margin
NPL	Non-Performing Loan
OE	Operational Efficiency
ROA	Return on Assets
ROE	Return on Equity
ROI	Return on Investment
TRWA	Total Risk-Weighted Assets

OPERATIONAL DEFINITION OF TERMS

Capital Level: The amount of capital invested by banks which generates sufficient amount of resources that provides the enabling environment for effective intermediation while absorbing losses that could lead to banks failure. The measurement of capital level for this study was core capital to total assets.

Credit Size: Credit size represents the volume of loans which banks issued out to borrowers in the process of intermediation between surplus spenders and deficit spenders. The measurement of credit size as captured by this study entailed the volume of total loans which the banks posses.

Commercial Banks They offer financial services to small, medium and large scale businesses which assist in increasing the productive capacity of the economy.

Earnings: Earnings explains the profit potential of banks which is sufficient for the growth of banks operations keeping in view the capital level increase that sustain its competitive strength in the banking industry. This study however, employed the use of return on asset as a measure of banks' earnings.

Financial Stability Financial stability connotes banks capacity to perform intermediation role without decreasing the confidence of the customers and participants. This study applied insolvency risk as measurement of financial stability.

Firm Specific Factors: Firm specific factors are inherently domestic factors that are particular to the operation of banks and handled by the management of banks. Capital level, operational efficiency, credit size and earnings were used as firm specific factors for this study.

Operational Efficiency: refers to the judicious use of bank resources by directors and management to effective carry out banks' operational activities within the ambit of the law or regulations by identifying and measuring risk that may emanate from banks' operation. Banks' operating profit to net income was utilized in measuring operational efficiency.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

World over, banks accelerate economic development through the flow of monetary supply and demand (Adusei, 2015). Banks provides avenue where funds swings between surplus and deficit spenders in all economies of the world. The banks provide investment funds to productive sectors of the economies which provide a level playing ground for the banks financial stability. The stability of banks, financial and economic institutions have remained the core drivers of every economy which Central Banks, policy makers as well as governments over time have strived to secure (Ahmed, Majeed, Thalassinos & Thalassinos, 2021). Commercial banks function significantly in every economy of the world by providing financial services to both individuals and business entities. These banks provide formal financial support to business which contributes to economic development of each economy in the world with most of their services centered in urban cities.

In Africa, the banking industry has continued to grow in an unprecedented manner due to the rising demand for financial services. This has led to the growing number of commercial banks in Africa with some licensed by their apex banks to render global financial services beyond the shores of their economies (Bengi & Njenje, 2016). The growing number of these banks has resulted to an increase in the provision of credit facilities as well as deposit thereby providing avenue for financial inclusion and effective workability of monetary policies. Ofoeda, Gariba and Amoah (2016) posit that commercial banks renders intermediary roles from customers' funds in which failure of any of the bank may lead in a contagious effect on retail consumers institutions that can set off numerous impacts on the domestic and international markets. However, effective roles of commercial banks can only be performed by stable banks. Banks' financial stability is ensured via financial regulatory

bodies in Africa have continued to tighten operational rules (Wangila, 2017). These rule financial rule are geared toward enabling the banks to withstand shock that may result from both domestic and external forces (Delechat, Henao, Muthoora & Vtyurina, 2012).

The Kenyan banking industry is characterized by instability in financial performance (King'ori, Kioko & Shikumo, 2017). This emanates from liquidity risks due to the banks inability to meet up with financial obligation of cash payment as at when due (Dembel, 2020). More so, credit risk associated by with financial loss is shouldered by banks due to borrowers' inability to pay as at when due (Hasanovic & Latic, 2017). This has resulted to an increasing rate of non-performing loans within the banking industry thereby putting the industry in a state of insolvency risk. Gross NPLs to gross loans ratio increased from 12.7 percent in June 2019 to 13.1 percent in June 2020 with Agriculture, Building and Construction, Energy and Water, and Financial Services sectors recorded the highest increases in NPLs. This increase in NPLs could be attributed to delayed payments by the public and private sectors; low demand of developed housing and commercial units in the real estate sector; delays in cash inflows attributed to low business turnover; extreme weather conditions (excess rainfall); and Poor business as a result of COVID-19 pandemic in the second quarter of 2020 (CBK, 2020).

Firm specific factors have significant influence on commercial banks' financial stability which critical to management, Central bank and government decision. Capital serves a critical part to the functioning of banks as it is the chief driver of financial stability (Karugu, Achoki & Kiriri, 2018). Banks with higher level of capital resources are said to perform better than those whose capital is low. Capital determine the amount of credit issued by banks, it operational cost as well as the diversification of income source which ensures the banks stability drive (Kouam, 2021). In the same vain capital levels have great potential

diversifying loan portfolio risk emanating from cross-border financial activities (Mafumbo, 2020).

Operational efficiency entails the maximum utilization of bank resources by directors and management to effective carry out banks' operational activities within the ambit of the law or regulations by identifying and measuring risk that may emanate from banks' operation. Operational efficiency performs a greater function in banks' financial stability. Credit function significantly in the existence of banking institutions as it affects the banks' profitability in the competitive business space (Kumar, 2016). The ability of banks to earn more plays a critical role in loss absorption thereby boosting the capital base of the banks to withstand any shock that may result from operational activities of the banks and thus, ensuring stability of the banks (Kamande, 2017).

Under aegis of the banking industry in Kenya, two commercial banks (Dubai bank and Imperial bank) were placed under statutory management form from 2015 with the placement of Chase bank in 2016 under receivership. However, weighted composite index determine Kenya's commercial banks market share categorization which comprised of deposits, net assets, reserves and capital, aggregate credit accounts and aggregate deposit accounts to measure Kenyan commercial banks' financial stability (CBK, 2018). In other to ensure such stability of the banks, prudential regulations are initiated to ensure optimum operational performance of the banks within the statutory, capital, operation and reporting framework (Akims & Akims, 2019).

1.1.1 Firm Specific Factors

Firm specific factors are inherently domestic factors that are particular to the operation of banks and handled by the management of banks. These factors are manipulated by the banks' management through decision making and strategy adoption (Kamande, 2017). Firm specific

factors have some degree of variation from one bank to the other. The manipultaion of such specific factors determines the success or failure of the banks. Therefore, capital level, operational efficiency, credit size and earnings are used as firm specific factors for this research. The choice of these specific factors was informed by literature on financial stability. Capital serves a critical part to the functioning of banks as it is the chief driver of financial stability (Ngaira & Miroga, 2018). Banks with higher level of capital resources are said to perform better than those whose capital is low. Capital determine the amount of credit issued by banks, it operational cost as well as the diversification of income source which ensures the banks stability drive (Kwakwa, 2014).

Capital levels is defined as the amount of capital invested by banks which generates sufficient amount of resources that provides the enabling environment for effective intermediation while absorbing losses that could lead to banks failure. The level of capital held by banks determines the magnitude of its managerial decision thereby holding such capital over and above the required amounts. The adequacy of capital influences the operational capacity of the banks as one of the major firm inner factor that ensures banks' stability (Ngaira & Miroga, 2018). Higher level of capital represents the huge amount of finances which a banks has available at its disposal in the support of its business activities while lower level of capital depicts the banks' level of struggle to maintain its financial stability. Higher capital serves as buffers to banks in period of negative shocks (Onuonga, 2014). Banks increases capital levels to support deposits which are fragile and prone to runs associated with banks liquidity operations. Therefore, higher level of banks' capital reduces the chances of financial instability and distress (Bucher, Dietrich & Hauck, 2018). Core Capital share to Total Risk Weighted Assets ratio was 16.5% in 2017 and 2018 with Total Capital to Total Risk Weighted Assets (TRWA) ratio averaged 18.8% in 2017 but rise to 19.5% in 2018. By the year 2020, core capital share was 16.4% with total capital to

total risk weighted assets share averaged 18.5% which is above the conventional minimum ratios of 10.5% and 14.51% respectively. In the same vain, core capital to total deposits ratio was 16.7% higher than the minimum statutory rate of 8.0%. Diverse income sources of banks provide banks with more stable capital opportunity thereby withstanding risks. The measurement of capital level for this study was done using core capital to total assets.

Operational efficiency refers to the judicious use of bank resources by directors and management to effective carry out banks' operational activities within the ambit of the law or regulations by identifying and measuring risk that may emanate from banks' operation. Efficient and effective operation of banks activities stimulates banks drive for profit stability. However, banks' income maximization and operations is evaluated through financial ratios (Ngungu & Abdul, 2020). The quality of banks' management efficiency is assessed through working profit to income percentage. When bank operating profit to total income ratio rises, such banks are termed efficient in the generation of income for their operations. Notably, operational efficiency performs significant task in the determination of banks magnitude of operational expenses which ultimately influences banks' stability (Uniamikogbo, Okoye & Amos, 2021). Bank operating profit to net income was used as a measure operational efficiency.

Credit size represent the volume of loans which banks issued out to borrowers in the process of intermediation between surplus spenders and deficit spenders. Credit play a major role in the existence of banking institutions as it affects the banks' profitability in the competitive business space. The size of banks' credit can be spread across portfolio, fixed and current assets and other investments. Banks generate the highest income from loanable funds issued out to debtors (Ngungu & Abdul, 2020). In the event of intermediation between surplus and deficit spenders, banks are exposed to higher risk of loan non-repayment which

affects the profitability of the banks. When loans issued out to debtors are not repaid within the stipulated time frame, such loans are said to be non-performing thereby posing bigger threat to banks' stability. Therefore, banks' management must operate within the confines of low non-performing loans to ensure the banks stability within the industry (Yensu, Yusif, Tetteh, Asumadu & Atuilik, 2021). The Central Bank of Kenya's report (2020) documented that in the year 2015, NPL stood at 5.99% and further increased to 8.59% in 2016. The rate increased further to 12.3 % in 2017 and 12.7% in the year 2018 with the rate being stable through 2019 but rise to 13.1% in the year 2020. According to Central Bank of Kenya (2020), commercial banks' average lending declined from 12.47% 2019 to 11.89% in 2020 with deposit rates also declining from 7.19% in 2019 to 6.86% in 2020. This implies that lower non-performing loans ratio to loan total depicts the healthiness of banks' credit portfolio. The measurement of credit size as captured by this study was the volume of total loans which the banks posses.

Earnings explains the profit potential of banks which is sufficient for the growth of banks operations keeping in view the capital level increase that sustain its competitive strength in the banking industry. Banks' ability to earn more plays a critical role in loss absorption thereby boosting the capital base of the banks to withstand any shock that may results from banks' operational activities and thus, ensuring stability of the banks. The assessment of banks earning is captured by different methods which include return on assets (ROA), return on equity (ROE) and net interest margin (NIM) (Ongore & Kusa, 2013). These assessment techniques are measured based on a scaling system of 1 to 5. When a bank is rated on a scale of 1, it means such bank has strong earnings that supports and maintain allowances of loans as well as sufficient capital for effective operations. On the other hand, a scale of 5 depicts the banks regular losses which show capital depletion as a result of distinct

threat to its solvency (Yimer, 2016). This study however, employed the use of return on asset as a measure of banks' earnings.

1.1.2. Financial Stability

Financial stability connotes banks capacity to perform intermediation role without decreasing the confidence of the customers and participants. This entails the optimum performance of banks operations in an effective and efficient way which is ensured through robust financial structure (Onuonga, 2014). As a result of this, banks' management are enthusiastic about the happenings in the banking industry to assist in setting up measures that will prevent the banks from being exposed to risk that may affect the efficient and effective performance of the banks' financial strength (Kohler, 2015). Therefore, optimum capital resource allocation demonstrates the banking sector's state of health and soundness (Mostak & Sushanta, 2015). The soundness and steady state of the banking sector's financial stability is ensured through financial regulations that strengthen the operational capacity of the banks which is issued by supervisory bodies (Beck *et al.*, 2013). In the absence of effective and unsound regulations, the banking sector is exposed to risk that may affect its stability thereby making it unstable and thus bringing about contagious effect that may leads to the collapse of the whole banking sector and the economy at large.

The banking industry's financial stability is affected with domestic and external determinants thereby exposing the sector's weak spots to shocks (Githinji, 2016). The ineffective and inefficient interaction of these factors may triggers a fall in the banking institutions as a result of distortion of the intermediation processes of finance which the financial system performs (Mostak & Sushanta, 2015). Financial stability measures have been put forward by different scholars to determine the effectiveness and efficiency of the financial system. According to Beck (2009), financial stability is best captured through credit

risk (non-performing loans) and insolvency risk (Z-score) which was carried out in Germany's banking industry. Accordingly, the Z-score which captures insolvency risk measures the stability of banks by depicting insolvency distance via accounting combination such as leverage, profitability and volatility. Z-score demonstrate banks' ROA deviations from its standard form which the banks must go below than the expected value previously eroded to equity which thereafter the bank becomes insolvent (Ngaira & Miroga, 2018). Higher financial stability of the banks is expressed by an upper Z-score value which shows a bank that has small threat profile (Wangila, 2017).

Credit as the major determinant of banks' intermediation role has high risk associated with it which spread across other bank's assets and activities. Therefore, the management of credit risk remained an integral part of banks' operational techniques (Mennawi, 2020). Banks largest income base comes from the loans which determine the viability of the banks' financial stability (Yensu *et al,* 2021). However, loans that are non-performing culminate into banks financial instability as a result of adverse effect which increases banks risks (Idama *et al,* 2014). Non-performing loans have effect on the profitability of banks as higher non-performance of loans erodes banks' profitability thereby increasing the liabilities if the banks. The ratio of NPL is quantified using total loan to non-performing loans. This measures the probability of debtors' loan repayment default ability in full at a point of maturity (Ngungu & Abdul, 2020). Commercial banks' credit risks exposure has led for a fall credit lending where CBK (2020) posit that commercial banks' average lending declined from 12.47% 2019 to 11.89% in 2020 with deposit rates also declining from 7.19% in 2019 to 6.86% in 2020.

The banking industry in Kenya has been experiencing a declining marginal growth rate as indicated by return on equity (ROE). Central Bank Kenya (2017) posited that there has been a decline in ROE from 2010 to 2017 with overall ROE recorded 25.98% which

dwindled by 2011 to 23.10%. This trend declined further to 21.99% in 2012 with 2013 having recorded 20.94%. As at 2014, overall ROE stood at 20.88% with 17.39% as the highest decline reported in 2017 (World Bank, 2020). Having witnessed this declining trend in the overall ROE, large banks have continued to witness growth on their returns.

Banks credit exposes banks' liquidity to higher risks which affected Dubai bank and Imperial bank which are placed under statutory management form since 2015 with Chase bank placed under receivership from 2016 as well as the merging of four banks in 2016 compared to only three within the period of ten years starting from 2002 (Central Bank of Kenya, 2017). As a result of this risk, banks ROA and ROE has continued in a declining trend since 2016. This trend pose a great threat to earnings of the banks by exposing them to financial instability risk which has increased banks' balance sheet risks much higher (Kenya financial stability report, 2017). This therefore applied the measurement of financial stability as suggested by (2009) which is insolvency risk.

1.1.3. Commercial Banks in Kenya

In East Africa, Kenya's financial sector is considered as the most developed with commercial banks as the most dominant of this sector. These commercial banks are set up to provide financial needs of the economy. They offer financial services to small, medium and large scale businesses which assist in increasing the productive capacity of the economy. Over the years, these banks have continued to develop initiative, innovation as well as creativity toward consolidating on financial service satisfaction to customers with such operations on sound principles. Commercial banks deals in a wide range of services which has interest clause to ensure income accruals for the stability of the banks keeping in view the financial stability of the economy at large (Ongore & Kusa, 2013). There are forty-three Kenyan commercial banks competing for the limited financial business environment that offers variety of services to both members of the public and businesses (Central Bank Kenya, 2018).

The financial Act of 2008 as observed by Kimeu (2020) stipulated the minimum statutory base capital for banking industry in Kenya at KSh 250 million as at 31st December 2009. This was further increased in 2012 to KSh 1 billion. This step was taken to consolidate on the banking sector thereby making it competitive on the global scene. Under the section 7(1) of the Banking Act of 2000, it is required that other least capital had 8% for outfitting ratio, 8% for gearing ratio in addition to resources weighted hazard and 12% all-out money to all-out weighted hazard. In the quest to ensure stability of the banks, the Kenya's Central Bank necessitated an enforcement of capital sufficiency. The inability of commercial banks to keep up to this capital required percentages led to termination of license, liquidation, or commercial banks merger (Karugu *et al*., 2018). According to CBK (2019), forty three licensed commercial banks are operational in Kenya. The existence of these banks provides several job opportunities by making sufficiently available funds for investment, cash loanable to the economy among other direct and indirect job creation (Ngaira & Miroga, 2018).

Under the banking industry in Kenya, two of the commercial banks such as Dubai bank and Imperial bank were placed under statutory form of management from 2015 with Chase bank under receivership from 2016. However, weighted composite index determine Kenya's commercial banks market share categorization which comprised of deposits, net assets, reserves and capital, aggregate credit accounts and aggregate deposit accounts to measure the financial stability of commercial banks in Kenya (CBK, 2018). In other to ensure such stability of the banks, prudential regulations are initiated to ensure optimum operational performance of the banks within the statutory, capital, operation and reporting framework (Akims & Akims, 2019). According to Ngungu and Abdul (2020), commercial banks stability is imperative in guaranteeing job creation, poverty reduction as well as economic development through domestic and foreign investment. Kenya's Vision 2030 of becoming a middle-income country has recognized the role of the banking sector as the major and success

pillar in the realization of the vision keeping in view macro-economic stability of the business environment (Ngungu & Abdul, 2020).

1.2 Statement of the Problem

Globally, banks play an important role in the flow of resources from deficit to surplus spenders through intermediation for the enhancement of economic general wellbeing (Hasanovic & Latic, 2017). Commercial banks perform significantly in capital formation as they offer wide range of services for productive ventures and people (Dembel, 2020). These banks are spread across Kenya with each competing for customers' deposits toward solidification of the banks for effective and efficient service delivery within and outside the economy. These banks extend credit facilities to both individuals and businesses thereby ensuring the financing of other sectors of the economy (King'ori *et al.,* 2017). Despite the role played by these commercial banks in economic stability, they have performed below expectation with some of the banks vulnerable to risk associated with financial performance and hence affecting their stability which has raised concerns from different stakeholders in the sector (CBK, 2018).

Instability in the banking sector is detrimental to the survival of the sector and the economy at large. This exposed the banks to so many shocks that could lead to bankruptcy and consequently folding up of banks due to the heavy financial cost involved in keeping the banks in a stable state of intermediation (Ahmed *et al*, 2021). This drains banks liquidity which is the major constituent of a sound financial sector without which customers' confidence is derailed (Adusei, 2015). In Kenya, there has been a declining marginal growth rate of the banking sector as indicated by return on equity (ROE). Central Bank Kenya (2017) posited that there has been a decline in ROE from 2010 to 2017 with overall ROE recorded 25.98% which dwindled by 2011 to 23.10%. This trend declined further to 21.99% in 2012 with 2013 having recorded 20.94%. As at 2014, overall ROE stood at 20.88% with 17.39% as

the highest decline reported in 2017 (World Bank, 2020). Having witnessed this declining trend in the overall ROE, large banks have continued to witness growth on their returns. Unsound and unsafe banking industry result from high insolvency risk stands as a great threat to the financial stability of banks thereby exposing the sectors inability to accommodate further risk associated to customers' deposits (Yimer, 2016). As a result of the this performance in the banking sector in Kenya, the industry's assets to nominal GDP has fallen with the contribution in 2014 at 59.3% and declined to 49.5% in 2018.

This state of declining returns on investment has led to instability in some banks in Kenya in the recent past. The insolvency of Chase Bank, Dubai Bank and Imperial Bank demonstrated the impact of instability in the financial performance of these banks with Dubai bank placed under statutory management in 2015 due to non-compliance with the 5.25% daily cash reserve ratio stipulated by the central bank (CBK, 2016). Furthermore, the collapse of Imperial Bank as a result of unhealthy business practices which was placed under statutory management in 2016 (CBK, 2016). Additionally, Chase Bank also collapsed due to under documentation of insider's loan (CBK, 2016). The collapse of these banks have contagious effect on the whole banking sector with the burden severely bond by creditors, depositors as well as stakeholders with implication of huge financial losses. This will invariably affect the contribution of the banking sector to the economy thereby deteriorating the growth rate of the economy (Mdoe, 2017). Firm specific factors play a key role in the financial stability of the banking sector, however only few empirical literature have established the link between such in the context of commercial banks in Kenya which this study intend to use.

Yimer (2016) observed from the study demonstrated that Ethiopia's private commercial banks were influenced by capital adequacy insignificantly. Karugu *et al.* (2018); Onuonga (2014); Wangila (2017) notably observed that capital level influenced significantly

commercial banks stability. Odundo and Orwaru (2018) concluded that banks with high capital are more stable as a result of diversification ability in operation thereby providing risk absorption capacity. Githinji (2016) observed that operational efficiency directly and insignificantly impacted on the financial stability of commercial banks in Kenya. Mennawi, (2020) noted that Sudanese Islamic banks performance were affected significantly by financial leverage and credit in an inverse manner. Mafumbo (2020) observed that credit management significantly impacted on commercial banks financial performance in Uganda. Dembel (2020) noted that operational capability, earning quality and assets quality affected the stability of commercial banks significantly. Following from empirical evidence, most of the studies focused on other countries of the world which has varying operational frameworks that depicts financial stability of banks. Financial stability as noted by Teresien *et al* (2021) is captured adequately by financial distress and solvency. In spite of the empirical literature on the linkage between firm specific factors, little evidence has been documented with respect to the financial stability of commercial banks in Kenya. The research sought to assess the effect of firm specific factors on Kenya's commercial banks' financial stability.

1.3 Objectives of the Study

1.3.1 General Objective

The general objective of the research is to assess the effect of firm specific factors on Kenya's commercial banks' financial stability.

1.3.2 Specific Objectives

The specific objectives of the study were:

i. To determine the effect of capital adequacy on financial stability of Commercial Banks in Kenya.
ii. To assess the effect of operational efficiency on financial stability of Commercial Banks in Kenya.

iii. To establish the effect of on credit size on financial stability of Commercial Banks in Kenya.

iv. To examine the effect of earnings on financial stability of Commercial Banks in Kenya.

1.4 Research Hypotheses

The study tested the following null hypotheses:

H_{01}: Capital adequacy has no significant effect on financial stability of Commercial Banks in Kenya.

H_{02}: Operational efficiency has no significant effect on financial stability of Commercial Banks in Kenya

H_{03}: Credit size has no significant effect on financial stability of Commercial Banks in Kenya.

H_{04}: Earnings has no significant effect on financial stability of Commercial Banks in Kenya

1.5 Significance of the Study

Several groups of stakeholders will find this study to be useful. These stakeholders include managers of commercial banks, Central Bank of Kenya, Academicians as well as researchers

1.5.1 Stakeholders

The banking sector stakeholders will find the outcome of the study resourceful in a number of ways. Better understanding of the linkage between firm specific factors and banks financial stability will be provided from the practical dimension to the bank managers and board for effective decision making. The outcome of the study will provide bank managers and board the basis upon which informed decision can be made with respect to operational efficiency, capital level, credit size and earnings toward ensuring financial stability of the banks.

1.5.2 Central Bank of Kenya

The Central Bank of Kenya will find the outcome of this study significant as a result of the insight which the study will provide on the relationship between firm specific factors such as operational efficiency, capital level, credit size and earnings and the stability of the banks. This will enhance the operational capacity of the Central bank in effective implementation of policies regarding financial stability through the banks intermediation role. The study will provide quality recommendation that will aid the policy makers in improving on the financial stability of the banks.

1.5.3 Research/Academicians

The research is of benefits to researchers and scholars through the provision of hypothetical underlying factors that guide the institution of the nexus between firm specific factors and banks' financial stability. This will provide the stakeholders with evidential information as to which firm specific factor affects financial stability of banks more. This will be exposed via a working methodology adopted in the research in establishing the linkage between the variables involved in the study. Furthermore, researchers and scholars will use the outcome of the study as reference point and addition of value to the existing knowledge in similar areas.

1.6 Scope of the Study

The scale of the research will be within the confines of firm specific factors (capital adequacy, operational efficiency, credit size and earnings) and commercial banks financial stability in Kenya, thus providing the need for contextual and conceptual scope of the study. The investigation focused on the period 2014 to 2020. Capital Buffer Theory, Financial Intermediation Theory and Efficiency Structure Theory form the theoretical framework of the study. Linear regression methods were used in this study based on the information provided in the study.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This segment of the study encloses literature consulted in the course of the study as well as hypothetical underpinning of the study. The section also captures the research gaps figured out from other studies with the conceptual structure of the study rightly encapsulated to portray the linkage between the study variables.

2.2 Theoretical Review

Various hypotheses served as the anchored theories of the study. Capital Buffer Theory, Efficiency Structure Theory and Market Power Theory, Capital Buffer Theory, Efficiency Structure Theory and Financial Intermediation Theory. An overview of the theories is captured below as well as their linked to the current study.

2.2.1 Buffer Capital Theory

This hypothetical underpinning of was put forward by Calem and Rob in 1999. This hypothesis assumed that banks derive maximum satisfaction in increasing their capital ratio after reaching minimum level specified by regulatory agencies which serves as a means of risk reduction chances in the event of violation of any regulatory requirement (Kohler, 2015). Contrarily, banks with low capital ventures into risky investment with higher return rate of anticipation in order to increase their capital base (Diamond & Rajan, 1999). This provides channels through which risks connected to lower capital levels affects banks operational activities.

The apex bank and other regulatory agencies of the banks initiate laws and regulations that provide the basis for sufficient capital against pro-cyclical lending panorama by encouraging countercyclical buffers formations (Milne & Whalley, 2001). Banks are

encouraged to provide excess capital as buffers to reduce the chances of going below the specified level required mostly in situations of adequacy volatility ratio. However, the breaching of such capital regulatory requirement attracts the attention of the monetary authority which attracts further sanction on erring banks (Calem & Rob, 1999). Banks which operates persistently under the such threshold are winded up. Therefore, capital provides an impetus for long term planning as it serves as the most dependable and reliable source of banks stability. In this case, banks with the ability to set aside sufficient deposits reduce the effect of depletion on capital formation (Choi, 2017).

This hypothesis establishes the linkages between capital level and commercial banks financial stability. The hypothesis explains the consequences of banks operating below and above the minimum capital requirement. Capital buffer entails banks holding in excess capital resources above the required regulatory benchmark. Banks in the position of low capital levels strive to build up buffers towards the suitable minimum required level while banks with higher capital levels tries to maintain and sustain such buffers as higher levels cushion the effect of adverse shocks and thus reducing the risk of banks failure. In the event of portfolio risk increases, banks raise capital level to meet up with their buffer levels thereby ensuring the linkage of capital adequacy level with banks' financial stability (Ochei, 2013).

2.2.2 Efficiency Structure Theory

Demsetz in 1972 propounded that Efficiency Structure Hypothesis. This hypothesis is divided into two: scale and X-efficiency. X-efficiency describes banks with sound practices and management controls costs and increase income in an efficient manner, thereby lowering the cost of the bank and putting it on a scale of best-practiced banks (Fisseha, 2015). Scale-efficiency on the other hand depicts the sound operational scale of banks which is achieved

through lower costs of operation. Therefore, lower cost of operation brings about profit enhancement and increased the banks' scale of growth ultimately.

This hypothesis is of the opinion that banks' portfolio composition returns on shareholders' value and earnings are indications of international operational decision of the management. According to Ang and Longstaff (2013), banks financial stability is affected by both external and internal factors. In this case, the way these factors are tackled point to the fact of banks general operations. The hypothesis noted that efficiency in production is attained through economies of scale. Therefore, efficiency in operation is maximally attained at a point where resources are deployed optimally (Niresh, 2012). The hypothesis is of the opinion that banks with operational efficient and well-experienced management with adequate technologies can cut down operational costs and increase earnings on investment (Mirzaei, 2012).

Operational efficiency and banks' stability linkage is best provided by this hypothesis. The theory pointed that increase concentration and stability is brought about by improved managerial operational scale efficiency (Alchian & Demsetz, 1972). Therefore, higher earnings drive operational efficiency which cuts down high operational costs. Higher operational efficiency culminates into a larger share of market thereby enhancing market concentration (Lotto, 2017). Banks with more efficient operational capacity attain stability in day to day business activities.

2.2.3 Financial Intermediation Theory

Diamond first conceptualized this hypothesis in 1984. This hypothesis asserted that financial intermediary function decreases the costs transactions and information asymmetric. The entails the movement of funds from deficit spenders to surplus spenders in the form of loans that has interest clause. Banks according to Scholtens & Van Wensveen (2003), conduct

financial intermediation role that focused on specialized financial products. The emergence of financial intermediation arises from market imperfection (Andries, 2009), without which financial intermediaries would cease to exist. Different markets activities are hindered by information differential existing between sellers and buyers.

Financial markets are inherently characterized by asymmetry information where buyers or borrowers have superior knowledge of projects which they intend to execute than the lenders of such funds. In such cases borrowers have superior information about their integrity, collateral and hard work compared to the ones made available to the lending institutions. On the other hand, business firms are more informed about their projects or businesses which they seek financial backings from the lending institutions. The financing of viable projects presented to the lending institutions is hindered by moral hazard which affects the free flow of information between participating parties (lenders and borrowers) (Scholtens & Wensveen, 2003). This affects the size of credit issued by banks in the process of intermediation which invariable affects the earnings of the banks for sustainability and stability.

Banks stability as explained by this hypothesis entails how information is shared between lenders and borrowers that affect the cost of financial transactions. This hypothesis is relevant as it exposed how banks' stability is arrived at through intermediation which profit is generated in the process amidst lending activities using limited customers' deposits. Banks with excessive lending higher than their capacity affects their liquidity thereby posing an insolvency challenge that may lead to financial distress (Kimutai, 2019). The intermediation role of banks is effectively carried out when such banks are stable financially. Banks stability is ensured by through the development of various financial products which enhances

operational capacity of the banks intermediation activities (Muriithi, 2014). Therefore, without financial intermediation, there will be no banks' financial stability.

2.3 Empirical Review

This part of the study document empirical literature reviewed in the study in line with the study definite. The capital level, operational efficiency, credit size and earnings effect on financial stability is empirically examined.

2.3.1 Capital Adequacy and Financial Stability

Using a period of 2008 to 2013, Onuonga (2014) evaluated six top commercial banks' financial stability in Kenya. The investigation made use of loans, efficiency, deposits, capital and financial stability as variables. Generalized least squares technique of analysis was employed. Inferentially, efficiency affected Kenyan commercial banks' financial stability in a significant manner. The research only focused on six top commercial banks in Kenya while this study considered all commercial banks in Kenya for a more and robust findings and coverage.

Using Ethiopia's commercial banks, Yimer (2016) analyzed the determinants of optimum liquidity levels. Using six (6) private commercial banks liquidity for the period 2000 to 2015, a balanced panel technique of analysis was employed. Banks' liquidity was measured by liquid assets/assets total, loans/deposits and liquid assets/deposits. Observation from the study demonstrated that Ethiopia's private commercial banks were influenced by capital adequacy insignificantly. This study differs significantly from the previous study in that the research was focused on Kenyan commercial banks' financial stability as the previous research was on private banks in Ethiopia.

Utilizing descriptive cross-sectional survey, Wangila (2017) examined the degree to which capital adequacy affects financial stability of Kenya's commercial banks. Making use

of forty-two (42) commercial banks in Kenya, employees from all the finance departments of these banks were use to form a population of 342 employees across the studied banks in 2015. Utilizing optimally multiple regression and descriptive analyses, the outcome stated that banks were capitalized adequately in accordance with the provision of the banking act, loan applicants' credit extension balanced with core capital, capital levels was adequate in absorbing losses emanating from non-performing liabilities, there was restructure in equity and debt mixture which improved its core capital base. Notably, capital level influenced significantly commercial banks stability. It was advocated that capital level should be encouraged to enhance the stability of banks. The objective of this study was attained using secondary data unlike the previous study which applied primary data.

Odundo and Orwaru (2018) analyzed the effect of capital levels on the financial stability of commercial banks in Kenya. Correlation technique of analysis was employed where a population ten (10) commercial banks listed at the NSE was employed covering from 2011 - 2017. As demonstrated by the regression outcome bank capital affected financial stability in a positive manner. It was concluded that banks with high capital are more stable as a result of diversification ability in operation thereby providing risk absorption capacity. It was suggested that banks should put in more policies that will support high maintenance of capital for good state of soundness. The assessment of financial stability was through return on assets, while this study employed insolvency risk.

Karugu *et al.* (2018) examined adequacy shares of capital as Kenya's commercial banks' financial distress. The study employed descriptive plan on forty-three commercial banks in Kenya for the period 2009 to 2015. Making use of stepwise logistic regression, capital adequacy ratios (core capital/total risk-weighted assets, total capital/total risk-weighted assets and Core capital to total deposits) predicted commercial banks financial

distress in Kenya in a insignificant way. It was advocated that regulatory and reporting of the banking sector should drive the capital adequacy of the banks. Commercial banks financial distress was the fore of the study whereas this study focused on financial stability of commercial banks in Kenya.

2.3.2 Operational Efficiency and Financial Stability

Using bank size, profitability and operational efficiency, Delechat *et al.,* (2012) analyzed Central American banks' determinants of liquidity buffers. Regression analysis was applied on the secondary data obtained. The study reported that operational efficiency significantly exerted pressure on liquidity of Central American banks. Banks in this region are guided by solid regulatory and supervisory frameworks compared to a developing country such as Kenya. This study differs from the previous study as it seeks to evaluate firm specific effect on financial stability of Kenyan commercial banks.

Using a period of 2008 to 2013, Onuonga (2014) evaluated six top commercial banks' financial stability in Kenya. The investigation made use of loans, efficiency, deposits, capital and financial stability as variables. Generalized least squares technique of analysis was employed. Inferentially, efficiency affected Kenyan commercial banks' financial stability in a significant manner. The investigation only centered on six top commercial banks in Kenya while this research considered all the Kenyan commercial banks for a more and robust findings and coverage.

The determinants of Kenya's commercial banks financial stability was evaluated by Githinji (2016). Using a population of Kenyan forty three commercial banks, both internal and external factors were considered. Poll technique was used in which a questionnaire was administered on two top banks managers of the studied banks making a total of 82 sampled respondents. Employing descriptive, correlation and multiple regression analyses, the

outcome showed that operational efficiency directly and insignificantly impacted on Kenya's commercial banks' financial stability. As a suggestion from the study, internal factors are within the banks operational scope and banks' manipulation; hence banks' financial stability can be attained by the management through adjustment of these internal factors. The objective of this study was achieved using secondary data unlike the previous study which applied primary data.

Using commercial banks listed in Kenya, Ngaira and Miroga (2018) looked at the financial stability determinants. With the utilization of descriptive survey plan, 356 commercial banks employees were used from 11 commercial banks listed at NSE. A questionnaire was used to gather data in which regression, correlation and descriptive techniques of evaluation were considered. Documentation from the showed that operational efficiency impacted on commercial banks listed at NSE financial stability in an adverse and significant manner. The objective of this study was attained using secondary data unlike the previous study which applied primary data which has biasness.

Ahmed *et al* (2021) investigated macro-economic and bank specific determinants of commercial banks stability using nonperforming loans (NPLs) for the period 2008 to 2018 in Pakistan. Dynamic system GMM estimation was used. The outcomes of the investigation showed that loan loss provision, net interest margin, credit growth and diversification of bank increase NPLs significantly, whereas operating efficiency lower NPLs and thus financial stability. Additionally, exchange rates, higher interest rates and political risk significantly increase NPLs, whereas growth in GDP decreases NPLs. Pakistan was the focus of the study whereas commercial banks in Kenya was used for this study

2.3.3 Credit Size and Financial Stability

Considering a period of 2008 and 2018, Mennawi, (2020) assessed credit, liquidity and the risk of financial leverage on Sudanese Islamic banks performance. With the adoption of panel regression technique, thirteen (13) Sudanese banks were engaged. It was noted by the result of the study that Sudanese performance of Islamic banks was affected by liquidity insignificantly. Sudanese performance Islamic banks was affected significantly by financial leverage and credit in an inverse manner. Sudanese Islamic banks performance was impacted significantly by ratio of assets liquidity to total assets and liquidity risk in a positive manner. Sudan was the center piece of the investigation while Kenya's commercial banks were considered in this study.

Mafumbo (2020) analyzed credit management effect on Uganda's financial performance of commercial banks. With the employment of regression analysis as technique of evaluation, credit management significantly impacted on Uganda's financial performance of commercial banks. It was advocated that adequate control of risk should be put in place by commercial banks by maintaining lower ratio of nonperforming loans. The investigation was conducted in Uganda with consideration on commercial banks management of credit while this investigation focused on Kenya's commercial banks.

In Ghana, Yensu *et al*. (2021) explored the main determinants of commercial banks stability. Eight (8) banks were studied for the period of 2008 and 2017 using panel model of assessment. The outcome of the observation noted that net profit margin and bank size positively affected bank stability in a significant way whilst credit size interest cover negatively impacted on banks' stability significantly. The recommendation from the study outcome suggested that commercial banks in Ghana should embark on reasonable expansion

which will ensure efficient and effective utilization of all banks' assets. The research was carried out in Kenya while this one was on Kenya's commercial banks.

Kouam (2021) studied how financial sector credit and central banks claims affect the liquidity of the banking sector and financial stability risks. Using algorithm construct, the study used financial sector domestic credit, capital ratio of bank assets, central government claims on the liquidity of the banking sector as measures of financial stability. Banks liquidity as observed by the results showed a significant and positive impact of capital assets ratio. Domestic credit and central government claims decreased the liquidity of banks. The study advocated that commercial banks should invest in higher-value domestic projects to enhance profitability in the long-run thus improving financial stability. The study was conducted on CEMAC region commercial banks while this research was stressed on Kenya's commercial banks stability.

Focusing on credit transmission channel and pandemic emergency purchase program in various Euro countries, Teresien *et al* (2021) identified the major factors affecting enterprises long-term loans credit conditions and COVID-19 spread impact on banking sector using credit risk, lending growth, indicators of financial soundness and financial distress. A model of panel regression was applied in which the outcomes noted that banks' risk tolerance is a major influencing factor on long-term loan credit standards. COVID-19 pandemic spread inversely affected banking sector credit risk, financial distress, banking sector profitability and solvency. The outcomes also showed that financial distress reduces with banking sector increase in liquidity, profitability and decrease in solvency. The study was conducted in Euro areas that are more developed than Kenyan economy where this investigation was considered Kenya's commercial banks stability.

2.3.4 Earnings and Financial Stability

Ghana's rural banking industry was examined to determine the effect of earnings on banks' stability by Adusei (2015). As at 2013, 112 rural banks were considered out of 137 due to data availability. Quarterly report of the RCBs was obtained from the central bank for the period 2009 Q1 to 2013. Total assets and deposits was used to measure banks' size. As observed by the outcome of the investigation, earnings affected banks' stability insignificantly. Following from the study, a contextual gap emanated as the study was conducted in Ghana while this study focused on Kenyan commercial banks.

United Arab Emirates commercial banks were studied to analyzed financial performance effect on banks' financial stability by Kumar (2016). The study period spanned from 2008 to 2013 taking into account crisis and post crisis era of the banks taken into account. ROA and ROE was used as ratios to measures financial performance. The study provided five measures which were used to measure ten United Emirates commercial to include banks include earning ability, asset quality, capital adequacy, management capability, Altman's Z-score and liquidity ratio. The revelation from the study outcomes showed that United Emirates commercial banks' financial stability was affected significantly by financial performance. It was also observed that in the period of global crisis, the banks were resilient to the crisis in United Arab Emirates. Banks in United Arab Emirates were the focal point of the study whereas Kenyan commercial banks was the main focus area of this investigation.

Using Herzegovina and Bosnia banking sector as a case study, Hasanovica and Latic (2017) analyzed the excess liquidity determinants. The study period covered 2006 to 2015 with nineteen (19) banks used as the study population which as at 2015b accounted for 86% of the banking sector total. Generalized method of moment was used for the study analysis where the outcome revealed that earnings insignificantly affected banks liquidity positively.

Herzegovina and Bosnia banking sector was the focal point of the study which has different regulatory framework with that of Kenya. This study was conducted within the confines of commercial banks in Kenya.

Dembel (2020) investigated the determinants disturbing the stability of Ethiopia's commercial banks using CAMEL rating score for the period 2010 to 2018. Using ROA to measure the stability of the banks, assets quality, operational efficiency, capital adequacy liquidity position, earning quality, bank age and GDP were used. Utilizing random effect GLS regression, operational capability, earning quality and assets quality affected the stability of commercial banks significantly. Conversely, liquidity, bank age, assets quality and earning quality significantly affected banks efficiency. Furthermore, earning quality and operational capability positively impacted on commercial banks stability. Unlike the previous study, this research has its center on Kenya's stability of commercial banks.

Uniamikogbo *et al*. (2021) analyzed income diversification effect on Nigeria's deposit money banks financial performance. Employing income, foreign exchange, commission income and firm age as variables for the investigation, Tobin Q was utilized on eight (8) banks for the period of 2008 to 2018. Panel and descriptive tools of analysis were engaged. It was observed that commission income significantly and positively affected Tobin's Q ratio of DMBs, income, foreign exchange and firm age impacted on Tobin Q ratio inversely and significantly in Nigeria's DMBs. It was advocated that banks should minimize foreign exchange income in order to maximize performance stability. Unlike the previous research, this investigation focuses on Kenya's commercial banks stability.

2.4 Conceptual Framework

This depicts the diagrammatical structure in which the study variables portray an underlying linkage (Mugenda & Mugenda, 2013). Firm specific factors in the study takes into account

capital levels, earnings, credit size and operational efficiency constituted the explanatory variables of the investigation. The explained variable of the investigation is financial stability. Therefore, the linkage of the study variables that is firm specific factors and financial stability is demonstrated constructively as thus:

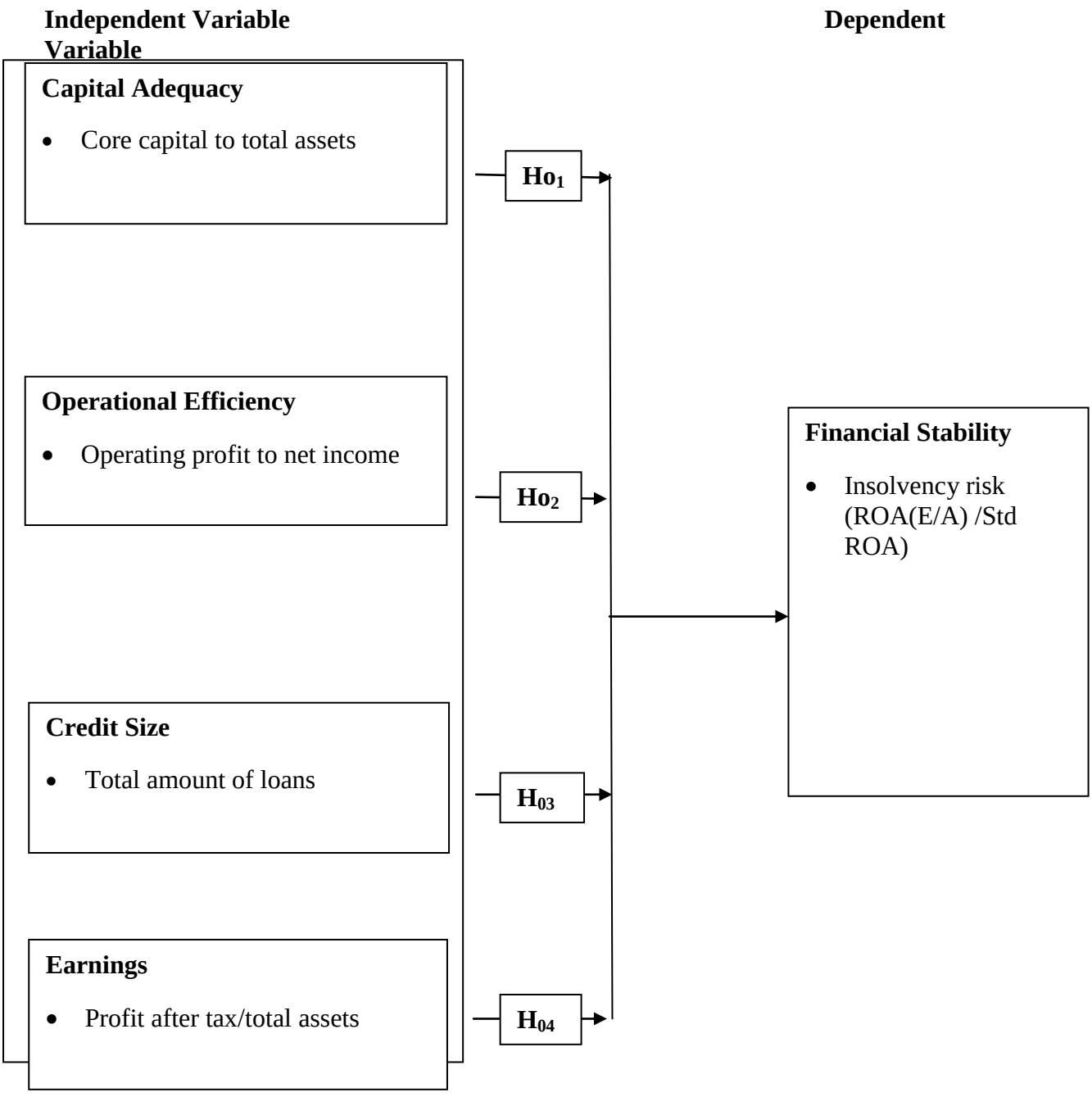

Figure 2.1: Conceptual Framework

Source (Researcher, 2022)

2.5 Operationalization of the Variables

Table 2.1: Operationalization of the Variables

Nature	Variable	Measurement	Measurement Scale	Hypotheses Direction
Predetermined Variable	Financial Stability	ROA(E/A)/std ROA	Ratio	Positive/ Negative
Independent Variable	Capital Adequacy	Core capital /total assets	Ratio	Positive/ Negative
Independent Variable	Operational Efficiency	Operating profit /net income	Ratio	Positive/ Negative
Independent Variable	Credit size	Loan total	Log	Positive/ Negative
Independent Variable	Earnings	Profit after tax/total assets	Ratio	Positive/ Negative

Source: Researcher (2022)

2.6 Summary of Literature Review

Buffer capital theory assumed that banks derive maximum satisfaction in increasing their capital ratio after reaching minimum level specified by regulatory agencies which serves as a means of risk reduction chances in the event of violation of any regulatory requirement. This hypothesis establishes the linkages between capital level and commercial banks financial stability. The hypothesis explains the consequences of banks operating below and above the minimum capital requirement. Efficiency structure theory is divided into two: X-efficiency and scale efficiency. According to the hypothesis, X-efficiency describes banks with sound practices and management controls costs and increase income in an efficient manner, thereby lowering the cost of the bank and putting it on a scale of best-practiced banks. Scale-efficiency on the other hand depicts the sound operational scale of banks which is achieved through lower costs of operation. Operational efficiency and banks' stability linkage is best provided by this hypothesis. The theory pointed that increase concentration and stability is brought about by improved managerial operational scale efficiency. Financial intermediation

theory asserted that financial intermediary function decreases the costs transactions and information asymmetric. The entails the movement of funds from deficit spenders to surplus spenders in the form of loans that has interest clause. Banks stability as explained by this hypothesis entails how information is shared between lenders and borrowers that affect the cost of financial transactions.

2.7 Research Gaps

Several studies have been conducted to determine the effect of firm specific factors on the financial performance in different countries of the world with the studies having different outcomes. For instance, the study of Onuonga (2014) evaluated six top commercial banks' financial stability in Kenya. Wangila (2017); Odundo and Orwaru (2018); Karugu *et al.* (2018) focused on the degree to which capital adequacy affects financial stability of Kenya's commercial banks making use of commercial banks employees. The determinants of commercial banks' financial stability was evaluated by Githinji (2016) and Ahmed *et al.* (2021), using both internal and external factors. Using Kenyan commercial banks listed, Ngaira and Miroga (2018) explored financial stability determinants. Yensu *et al.* (2021) explored the main determinants of commercial banks stability in Ghana with Adusei (2015) having considered Ghana's rural banking industry to determine the effect of earnings on banks' stability. Dembel (2020) investigated the factors distorting Ethiopia's commercial banks' stability using CAMEL rating score.

Having reviewed several literatures on the subject matter, it is evidently clear that there still remain loopholes on the linkage between firm attributes and banks' financial stability which this research find necessary to address. For instance, most of the study on the subject matter focused on one variable like that of Wangila (2017); Odundo and Orwaru (2018) and Karugu *et al.* (2018) which gives only a little idea on how firm specific factors

affect the stability of Kenyan commercial banks. Most of the studies conducted within the context of commercial banks in Kenya made used of employees of the banks which limits comprehensive understanding of the effect of such factors on the financial stability of the commercial banks. Furthermore, other studies conducted on banks stability were done in other countries which has varying degree of firm specific effect on financial stability however, those studies done on commercial banks in Kenya only limit their study to specific commercial banks. Additionally, most of the studies employed returned on asset, return on equity as well as non-performing loans as measures of financial stability while this study employed the use of insolvency risk across all commercial banks in Kenya for a more robust analysis within a longer period (2014 – 2020). Therefore, this investigation seeks to evaluate the effect of firm specific factors on commercial banks' financial stability in Kenya.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Procedures to which the findings of the study were arrived at are presented in this segment of the research. The procedures presented the design of the research, empirical model, variables operationalization, study population, and sampling techniques. The chapter also presents the evaluation techniques used in the study as well as the diagnostic tests.

3.2 Research Design

A research design, according to Cooper and Schindler (2007), is the general plan that guides the researcher's work. It guides the investigator on the manner in which research questions can be answered and as such Creswell (2006) and Hair (2007) lend credence to this by pointing out that a proper research design involves targets, sources from which information is gathered, expected limitations and ethical concerns to be observed. As a result, it helps the investigator in making informed judgment about the appropriate study methodology. Saunders (2007) classified design as explanatory, exploratory and descriptive. An exploratory study tries to figure out whether what's going on can be clarified by an established hypothesis and lays the foundation for future research. After the foundation has been laid, Lewis and Thornhill (2009) posited that more information is needed for the newly discovered field that can be obtained through descriptive survey research design.

Mugenda and Mugenda (2004) noted that descriptive study aids the researcher in including the characteristics of a population and assess hypotheses. Furthermore, the investigator has no control of the variables to be studied in that he or she cannot influence them thereby avoiding bias. Cross sectional and longitudinal survey designs are the two descriptive research designs employed in an investigation which Cooper and Schindler

(2008) described as that which aimed at collecting data on the same variables over a long period of time while cross sectional entails the collection of data across a sampled sect at a particular point in time.

Investigation plan is regarded as the conduct employed in investigation from data collection, measurements, and subsequent analyses (Cooper & Schindler, 2009). It is viewed as the blueprint utilized by a researcher in providing answers to questions raised (Mugenda & Mugenda, 2013). Research designs serve as outlines and guides in the approaches to be used in a research study, all through the formulation of the research hypothesis, analyses of research data, and reporting of research findings. The study adopted an explanatory research design that is considered most appropriate when dealing with a less researchable problem by providing a better-researched model.

Explanatory research design establishes causal and effect relationship between variables**.** The stipulation of this design as explained by Sekaran and Bougie (2011) deals with the effect and cause among variables of a study. A non-experimental analysis as described by Robson (2012) is an organized scientific investigation where the investigator has no direct influence over the study's independent variables. The variables are determined independent of the researcher and as such, Kerlinger and Lee (2014) credited the existence of non-experimental design as that which is explanatory and can be used in situations where an investigation tries to explain how various phenomena act by identifying the causal variables that trigger the variation devoid of evaluating further any additional variable. The explanations of the various research designs captured in this study have been provided in which explanatory design was adopted to examine the effect of firm specific factors on Kenya's commercial banks' financial stability.

3.3 Target Population

A study population is defined as those elements which has unique feature that a researcher intends to measure or investigate. These elements could be objects, constituents, people or things under the investigative view of the researcher. Blumberg *et al.,* (2014) viewed a population as a collection of research objects which the researcher have interest in covering in order to arrived at certain predetermined outcomes. A population, according to Cooper and Schindler (2008), is the sum of all artifacts or individuals that share similar measurable characteristics. A researcher's total interest elements as explained by Saunders, Lewis and Thornhill (2009) referred to the target population which the researcher intends to investigate. This study made use of all the commercial banks in Kenya. Therefore, forty commercial banks were used as the study unit of analysis (Central Bank of Kenya, 2018). In this case, all 41 commercial banks published annual financial report was used for the period between 2014 and 2020.

3.4 Sample Size and Sampling Technique

This involves the procedure of selecting a sub-set out of the population audience for the aim of drawing conclusion on the general study population. In estimation of the appropriate sample to be evaluated, there is need to select the best possible sample that represents adequately the population of the study. This is to ascertain the degree of confidence which was accorded to the study outcomes. According to Kothari (2011), sampling is the selection of a population sub set to be used for generalization on the whole study population. Based on the small sample size of the study, census approach was employed in the study giving the number of commercial banks which are only forty one (Central Bank of Kenya, 2020). In support, Mugenda and Mugenda (2013) posit that census is employed in a case where the population of the study is considerably small.

3.5 Data Collection

Data collection procedure involves the step by step processes utilized by the researcher in obtaining data for the study. However, various steps were followed in obtaining information used for the study. The researcher sourced for an authorized letter from the school of graduate which proceeded to National Commission for Science, Technology, and Innovation (NACOSTI) for consent seeking permit acquisition. Secondary data was obtained on firm specific factors and commercial banks' financial stability. Annually audited financial reports of the commercial banks were sought after. Data collection for the study lasted for two weeks.

3.6 Data Analysis

Analysis of data is the evaluation of study data into meaningful recommendations and application for policy actions. This takes into account the different in the preparation of data, statistical tools application and documentation of major outcomes in line with the study objectives (Verbeek, 2012). Simple linear regression models were applied in the study spanning for the period 2014 to 2020. The analysis of the study data was effectively done through the use of STATA, where the data sourced was recorded on excel spread sheet and imported into STATA software. The analysis of the data was based on descriptive, correlation and regression analyses.

Regression analysis was carried out to establish statistical significance of the variables (Baltagi, 2005). Regression analysis will be conducted based on the data in line with the study's specific objective and null hypotheses. A p-value of 0.05 was used to test for the significance of the study variables.

3.6.1 Empirical Model

A model is that which demonstrated the physical connection of the study variables. It establishes a substantial mathematical linkage between the explanatory and dependent

variables. Therefore, the linkage between firm specific factor and Kenyan commercial banks' financial stability is formulated empirically. The expression that shows the connection between the variables is demonstrated as:

In line with the first objective of the study, the equation that expressed the connection between capital adequacy and financial stability is as thus:

$FINSTAB_{it} = \beta_0 + \beta_1 CLL_{it} + \varepsilon$ - - - - - - - (1)

The linear relationship between operational efficiency and financial stability is stated as:

$FINSTAB_{it} = \beta_0 + \beta_1 OEY_{it} + \varepsilon$- - - - - - - - (2)

Credit size relationship and financial stability expression is estimated as:

$FINSTAB_{it} = \beta_0 + \beta_1 CSZ_{it} + \varepsilon$- - - - - - - - (3)

Equation 4 expresses the relationship between earnings and financial stability:

$FINSTAB_{it} = \beta_0 + \beta_1 EAR_{it} + \varepsilon$- - - - - - - - (4)

Where:

$FINSTAB_{it}$= Financial Stability of Bank i at time t

CLL_{it} = Capital Level of Bank i at time t

OEY_{it} = Operational Efficiency of Bank i at time t

CSZ_{it} = Credit Size of bank i at time t

EAR_{it} = Earnings of bank i at time t

i = Bank

t = Time period

β_0 and β_1 = intercept and estimated coefficients of the different simple linear regression models

ε = Error term

3.7 Diagnostic Tests

In evaluating linear regression data, different diagnostic tests were applied to fulfill the standard requirements of the classical linear regression model (CLRM). Verbeek (2012) in support opined that violation of any of these assumption leads to biased and inefficient parameter estimates. Therefore, the study considered the various diagnostics tests applied in the conduct of linear regression model. These include multicollinearity, stationarity, heteroscedasticity, normality and model specification tests, were undertaken.

3.7.1 Normality Test

Under the assumptions of linear regression model, normality depicts a situation where the study data emanates from a normally distributed source. However, non-normality of the data set can result into wrong inferences (Wooldridge, 2013). Therefore, the efficient test of normality for the study was carried out with the help of Shapiro Francis test, where the null hypothesis states that data set emanates from a normal distributed source at 5% level of significance. In the case where the sample size is large (n >30) such issue arising from normality of the data can be ignored (Ghasemi & Zahediasl, 2012).

3.7.2 Heteroscedasticity Test

Heteroscedasticity is referred as a situation where observational residual variances vary across observations (Verbeek, 2012). It is assumed that the error terms across all observations be constant (homoscedastic). This is critical to the evaluation of linear regression model as the presence of this depicts the existence of biased confidence intervals and p-values of the estimated parameters. Therefore, the examination of this problem was done with the help of Breusch-Pagan test as posited by Wooldridge (2013). The examination of these data was conducted on a 5% level of significance where the null hypothesis states; variances of the residuals are constant or homoscedastic. Where heteroscedasticity problem prevails, robust

standard error was applied which in this case, the estimated parameters are not affected by heteroscedasticity (Wooldridge, 2013).

3.7.3 Multicollinearity Test

Multicollinearity refers to a situation in which two explanatory variables used in a study are correlated highly (Wooldridge, 2013). When such situation arises, it brings about false confidence region as well as inaccurate p-values. Variance Inflation Factor (VIF) test was used where a VIF of 5 and below is tolerable. According to Brooks (2008), the use of such threshold prevent the resultant high values of R^2 and high standard errors in which coefficients may insignificant which affects the precision and reliability of rejection or acceptance of the null hypothesis. This test ensures that no two or more explanatory variables in the model have high correlation or predict to with some degree of accuracy linearity in the prediction of others variables (Wooldridge, 2013).

3.7.4 Stationarity Test

Developments in econometrics have shown that, most time series are not stationary as it has been assumed by researchers. The unit root test is a pre co-integration test that is used to determine the order of integration of the variables that is, it indicates the number of times it has to be different or not, to become stationary (i.e. stable). According to Woodridge (2013) a set of data used in estimation of regression model is expected to be stationary (Wooldridge, 2013). This is to avoid spurious regression outcomes of non-stationary series. Therefore, Fisher-type (Phillips-Perron) unit-root test was used in examining the series for stationarity at 5% level of significance.

3.7.5 Model Specification Tests

Simple linear regression technique present the choice of upon which the researcher test or evaluated the models of the study. Therefore, in selecting the most suitable model for estimation, Hausman test was utilized in deciding on the best model to be evaluated for the study parameters (Baltagi, 2005). However, for the case of linear regression analysis, the test was conducted to decide on the most fitting model between the random and fixed effect model. The test was conducted at 5% significance level where the null hypothesis states; random model effect is preferred otherwise the fixed effect model is evaluated.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 Introduction

This section discusses the different processes which were employed for the analyses of collected data. It also presents a documentation of the underlying interpretation and implications of the study findings. First, descriptive statistics of the study constructs are provided to explain the basic features of the variables. The outcome of the diagnostic tests is documented while the findings from the linear regression analysis are provided thereafter. Lastly, the discussions of hypotheses testing are provided were the several null hypotheses are rejected or accepted in line with the underlying specific objectives of the study.

4.2 Descriptive Analysis

The descriptive statistics for the variables employed in the study are presented in table 4.1.

Table 4.1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial Stability	274	0.60	7.36	-16.36	108.38
Capital Adequacy	274	0.14	0.07	-0.21	0.49
Operational Efficiency	274	1.93	5.55	0.00	65.62
Credit Size	274	4.37	0.60	2.37	5.73
Earnings	274	-0.15	0.15	-0.43	0.06

Source: Study Results (2022)

Table 4.1 documents the study results on descriptive analysis. Financial stability had total observation of 274 and mean value of 0.60. A standard deviation of 7.36 was found for financial stability while the maximum and minimum values of 108.38 and -16.36 were established. This therefore indicates that the financial stability of commercial banks in Kenya over the study period was faced with high fluctuations, hence the instability. Capital adequacy had mean and standard deviation statistics of 0.14 ad 0.07 respectively. Also, -0.21 and 0.49 were established as minimum and maximum values respectively for capital

adequacy. Operational efficiency had mean and standard deviation of 1.93 and 5.55 with minimum and maximum values of 0.00 and 65.62 respectively. Credit size had 4.37 and 0.60 as values for mean and standard deviation respectively. Also, minimum and maximum values for credit size were2.37 and 5.73 respectively. Hence, credit size relatively fluctuated over the study period. Earnings had -0.15 and 0.15 as value for mean and standard deviation respectively. Additionally, the minimum and maximum values for earnings were -0.43 and 0.06 respectively.

4.3 Diagnostic Tests

In evaluating linear regression data, different diagnostic tests were applied to fulfill the standard requirements of the classical linear regression model (CLRM). Verbeek (2012) in support opined that violation of any of these assumption leads to biased and inefficient parameter estimates. Therefore, the study carried out various diagnostics tests which are necessary for the use of linear regression model. These include multicollinearity, stationarity, heteroscedasticity, normality and model specification tests, were undertaken.

4.3.1 Normality Test

Under the assumptions of linear regression model, normality depicts a situation where the study data emanates from a normally distributed source. However, non-normality of the data set can result into wrong inferences (Wooldridge, 2013). Therefore, the efficient test of normality for the study was carried out with the help of Shapiro Francia test, where the null hypothesis states that data set emanates from a normal distributed source at 5% level of significance. In the case where the sample size is large (n >30) such issue arising from normality of the data can be ignored (Ghasemi & Zahediasl, 2012).

Table 4.2: Normality Test Results

Variable	Obs	W	V	z	Prob>z
Financial Stability	274	0.26	154.89	10.63	0.00
Capital Adequacy	274	0.86	29.71	7.16	0.00
Operational Efficiency	274	0.19	170.51	10.83	0.00
Credit Size	274	0.97	6.89	4.07	0.00
Earnings	274	0.92	16.79	5.97	0.00

Source: Study Results (2022)

Based on the findings in Table 4.2, financial stability, capital adequacy, credit size, operational efficiency and earnings each had a p-value of 0.00. According to the central limit theorem, a sample size which is greater than 30 remains approximately normally distributed regardless of the population size and can be an adequate representation of the population.

4.3.2 Heteroscedasticity Test

Heteroscedasticity is referred as a situation where observational residual variances vary across observations (Verbeek, 2012). It is assumed that the error terms across all observations be constant (homoscedastic). This is critical to the evaluation of linear regression model as the presence of this depicts the existence of biased confidence intervals and p-values of the estimated parameters. Therefore, the examination of this problem was done with the help of Breusch-Pagan test as posited by Wooldridge (2013).

Table 4.3: Heteroscedasticity Test Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
H_o: Constant variance		
Variable: fitted values		
chi2(1)	=	104.90
Prob> chi2	=	0.0000

Source: Study Results (2022)

The examination of these data was conducted on a 5% level of significance where the null hypothesis states; variances of the residuals are constant or homoscedastic. Based on

Table 4.3, a p-value of 0.0000 was found, hence indicating the issue of heteroscedasticity. In addressing this issue, the robust standard errors were applied as they are not affected by issues of heteroscedasticity (Wooldridge, 2013).

4.3.3 Multicollinearity Test

Multicollinearity refers to a situation in which two explanatory variables used in a study are correlated highly (Wooldridge, 2013). When such situation arises, it brings about false confidence region as well as inaccurate p-values. The outcome of the test is documented in Table 4.4.

Table 4.4: Multicollinearity Test Results

Variables	VIF	Remark
Capital Adequacy	1.13	Absence of high Multicollinearity
Operational Efficiency	1.20	Absence of high Multicollinearity
Credit Size	2.89	Absence of high Multicollinearity
Earnings	2.78	Absence of high Multicollinearity

Source: Study Results (2022)

Variance Inflation Factor (VIF) test was applied in assessing the level of collinerity among the predictor variables. The test was based on a threshold of VIF value of 5. This test ensures that no two or more explanatory variables in the model have high correlation or predict to with some degree of accuracy linearity in the prediction of others variables (Wooldridge, 2013). The findings in Table 4.4 show that capital adequacy, operational efficiency, credit size and earnings had VIF values of 1.13, 1.20, 2.89 and 2.78 respectively. Hence, there was no issue of severe multicollinearity among the research (predictor) variables.

4.3.4 Stationarity Test

Developments in econometrics have shown that, most time series are not stationary as it has been assumed by researchers. According to Woodridge (2013) a set of data used in estimation of regression model is expected to be stationary (Wooldridge, 2013). This is to avoid spurious regression outcomes of non-stationary series. Therefore, Fisher-type (Phillips-Perron) unit-root test was used in examining the series for stationarity at 5% level of significance.

Table 4.5: Stationarity Test Results

Variables	t-Statistic(adjusted)	P-value	Comment
Financial Stability	8.79	0.00	No Unit Root
Capital Adequacy	1.80	0.04	No Unit Root
Operational Efficiency	3.46	0.00	No Unit Root
Credit Size	15.07	0.00	No Unit Root
Earnings	16.20	0.00	No Unit Root

Source: Study Results (2022)

Table 4.5 documents the outcome of the stationarity test which was carried out using Fisher-type (Phillips-Perron) unit-root test. The test was based on a null hypothesis that all variables are characterized by unit roots. Financial stability, capital adequacy, operational efficiency, credit size and earnings had p-values of below 0.05 which is the threshold. Hence, none of the research variables had issues of unit root.

4.3.5 Model Specification Test

Regression technique presents the choice of two models upon which the researcher test for the most suitable model for the evaluated in the study. Therefore, in selecting the most suitable model for estimation, Hausman test was utilized in deciding on the best model to be evaluated for the study parameters (Baltagi, 2005). However, in the case of panel data, the test was conducted to decide on the most fitting model between the random and fixed effect

model. The test was conducted at 5% significance level where the null hypothesis states; random model effect is preferred otherwise the fixed effect model is evaluated.

Table 4.6: Hausman Test Results

	(b) Fixed	**(B) Random**	**(b-B) Difference**	**Sqrt (diag(V_b-V_B)) S.E.**
Capital Adequacy	9.4583	-1.1755	10.6338	9.6899
Operational Efficiency	-0.0550	0.0638	-0.1188	0.1201
Credit Size	-3.0687	-0.8950	-2.1737	4.8482
Earnings	-65.3068	12.4533	-77.7601	124.8219
chi2(4)	1.70			
Prob>chi2	0.7902			

Source: Study Results (2022)

The Hausman was done as informed by a null hypothesis stating that the random effects model is suitable for purposes of estimation. The outcome in Table 4.6 depicts chi-square and p-value of 1.70 and 0.7902 respectively. As such, the random effect model was applied since the null hypothesis was accepted and not rejected.

4.3.6 Correlation Analysis

This is the evidence of a correlation between the model's variables. It shows whether or not the variables have a strong association with one another. The correlation's outcome is shown in Table 4.7.

Table 4.7: Correlation Result

	Financial Stability	Capital Adequacy	Operational Efficiency	Credit Size	Earnings
Financial Stability	1.0000				
Capital Adequacy	-0.0534	1.0000			
Operational Efficiency	0.0215	0.2155	1.0000		
Credit Size	0.0995	-0.1765	-0.3478	1.0000	
Earnings	0.1710	-0.2766	-0.2017	0.7808	1.0000

Source: Study Data (2022)

Table 4.7 shows the direction of link between firm specific parameters and financial stability of Kenya's commercial banks, as well as the correlations between the study's variables. The

financial stability of Kenya's commercial banks was inversely related to capital adequacy (-0.0534). As a result, rises in a bank's capital adequacy result in a decrease in the financial stability of Kenya's commercial banks. In Kenya, operational efficiency exhibited a weak positive (0.0215) relationship with commercial bank financial stability. This suggests that the financial stability of Kenyan commercial banks is due to their operational efficiency.

The correlation coefficient for credit size was 0.0995. As a result, credit size has a limited direct relationship with the financial soundness of Kenya's commercial banks. This means that as lending size increases in Kenya, commercial banks' financial stability improves. The association coefficient for earnings was 0.1710, indicating a moderately modest positive relationship. Earnings were favorably connected with the financial stability of Kenya's commercial banks. The financial soundness of Kenya's commercial banks would change by 0.1710 percent for every unit change in earnings.

4.4 Hypotheses Testing

Individual hypothesis of the study were tested using simple linear regression models. This is to determine whether the data best fit the regression line in explaining the regressand. This form the basis upon which the individual hypothesis are accepted or rejected.

4.4.1 Hypothesis One

Based on the information provided by the first simple linear regression model, the outcome is provided in Table 4.8.

Table 4.8: Regression Results

Financial Stability	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Capital Adequacy	-5.8635	5.8513	-1.00	0.316	-17.3321	5.6049
_cons	1.4098	1.1382	1.24	0.215	-0.8210	3.6408
R^2 = 0.0029						
Wald chi2 (1) = 1.00						
Prob> chi2 = 0.3163						

Source: Study Result (2022)

The R-squared value in Table 4.8 is 0.0029. This translates to a variation of 0.29 percent in commercial bank financial stability as a result of changes in capital adequacy. The F statistics in Table 4.8 have a value of 1.00 and a corresponding p-value of 0.3163. As a result, the model's importance is under implied. This means that the capital adequacy is not crucial in forecasting the financial stability of Kenyan commercial banking institutions as a whole. Therefore, the hypothesis with respect to this variable is stated.

H_{01}: ***Capital adequacy has no significant effect on financial stability of Commercial Banks in Kenya.***

This hypothesis was developed and evaluated in light of the first particular goal, which was to determine the impact of capital sufficiency on the financial stability of Kenyan commercial banks. Table 4.8 shows a coefficient and p-value of -5.8635 and 0.316, respectively. As a result, the null hypothesis that capital sufficiency has no substantial impact on financial stability of Kenyan commercial banks was not rejected at the 5% significance level. Because higher capital levels of banks are important in withstanding external shocks, higher capital requirements regulation can be detrimental to commercial banks in that it limits the amount available (in view of capital requirements) for financial intermediation process. Capital adequacy has a minor and negative impact on financial stability.

The outcomes of this investigation are consistent with earlier research. Onuonga (2014) used the generalized least squares method of analysis to assess the financial stability of Kenya's six largest commercial banks. According to the findings of the study, capital sufficiency had a minor impact on Ethiopia's private commercial banks. Yimer (2016) used six (6) private commercial banks in Ethiopia to investigate the factors that influence optimal liquidity levels. The balance panel regression approach of study revealed that capital adequacy had a minor impact on Ethiopia's private commercial banks. Karugu *et al*. (2018) looked at capital adequacy shares as a measure of financial distress among Kenya's

commercial banks. For the period 2009 to 2015, the study used a descriptive plan on forty-three commercial banks in Kenya. Capital adequacy ratios (core capital/total risk-weighted assets, total capital/total risk-weighted assets, and Core capital to total deposits) predicted commercial banks financial difficulty in Kenya in a minor way using stepwise logistic regression.

However, a few research found the opposite. Wangila (2017) investigated the extent to which capital adequacy influences the financial stability of Kenya's commercial banks using ideally multiple regression and descriptive analysis. Banks were adequately capitalized in accordance with the banking act, loan applicants' credit extensions were balanced with core capital, capital levels were adequate in absorbing losses resulting from non-performing liabilities, and the equity and debt mixture was restructured, improving the core capital base, according to the findings. Commercial banks' capital levels had a significant impact on their stability. Odundo and Orwaru (2018) investigated the impact of capital levels on commercial banks' financial stability in Kenya. Bank capital has a positive impact on financial stability, as the regression results reveal. The ability to diversify businesses and hence provide risk absorption capacity has been found to make banks with large capital more stable. The disparities in study results could be ascribed to differences in the study region as well as policy influence from other countries across the world, taking into account the time when the capital adequacy policy was established, which could have a time lag with the studies done.

4.4.2 Hypothesis Two

The second hypothesis of the study was also examined using the simple linear regression model and the result is presented in Table 4.9.

Table 4.9: Regression Results

Financial Stability	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Operational Efficiency	0.0281	0.0349	0.81	0.420	-0.0402	0.0965
_cons	0.4868	0.4455	1.09	0.275	-0.3863	1.3600
R^2 = 0.0005						
Wald chi2 (1) = 0.65						
Prob> chi2 = 0.4199						

Source: Study Result (2022)

In Table 4.9, the R-squared value is 0.0005. This amounts to a 0.05 percent shift in commercial bank financial stability due to changes in operational efficiency. Table 4.9's F statistics have a value of 0.65 and a corresponding p-value of 0.4199. As a result, the model's significance is overstated. This suggests that operational efficiency is unimportant in predicting the overall financial stability of Kenyan commercial banking institutions. The hypothesis which guided the direction of this variable is captured as:

H_{02}: ***Operational efficiency has no significant effect on financial stability of Commercial Banks in Kenya.***

The following hypothesis was developed and evaluated in relation to the second particular purpose, which was to determine the impact of operational efficiency on commercial bank financial stability in Kenya. Table 4.9 shows a coefficient and p-value of 0.0281 and 0.420, respectively. As a result, the study failed to reject the null hypothesis that operational efficiency had no substantial impact on commercial banks' financial stability in Kenya. Commercial Banks in Kenya see a 0.0281 rise in financial stability for every unit increase in operational efficiency. The outcome of the research could be affiliated to the crude methods of banks operations which does not maximize customers' satisfaction and hence, their low turnover.

Githinji (2016) analyzed the determinants of forty-three Kenyan commercial banks' financial stability, which was similar to the study findings. The results of descriptive,

correlation, and multiple regression studies revealed that operational efficiency had a direct and minor impact on the financial stability of Kenya's commercial banks. Ngaira and Miroga (2018) investigated the financial stability factors using Kenyan commercial banks. Using a descriptive survey of 356 commercial bank employees and the regression approach of analysis, it was discovered that operational efficiency had a negative and minor impact on the financial stability of commercial banks listed on the NSE. In Pakistan, Ahmed et al (2021) used nonperforming loans (NPLs) to explore macroeconomic and bank-specific factors of commercial bank stability. The findings of the analysis revealed that loan loss provision, net interest margin, credit growth, and bank diversification all considerably raise NPLs, whereas operating efficiency reduces NPLs and hence financial stability. Furthermore, increased interest rates, currency rates, and political risk all increase NPLs, but GDP growth reduces NPLs.

On the contrary, Delechat *et al*. (2012) investigated the factors that influence liquidity buffers in Central American banks. According to the study, operational efficiency put a substantial strain on financial stability. Onuonga (2014) analyzed the financial stability of six main commercial banks in Kenya using a period of 2008 to 2013 and the Generalized least squares approach of analysis. Efficiency has been demonstrated to have a major impact on Kenyan commercial banks' financial soundness. The contradictory outcomes of the studies could be link to the unique nature of commercial banks operations in different countries which give rise to the different directions of impact on the financial stability of the banks.

4.4.3 Hypothesis Three

With respect to objective three and the third hypothesis of the study, credit size hypothesis was evaluated with the aid of a simple linear regression model. Therefore, the outcome derived from the analysis is reported in Table 4.10.

Table 4.10: Regression Results

Financial Stability	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
Credit Size	1.2208	0.593	2.14	0.032	0.1050	2.3367
_cons	-4.7374	2.2221	-2.13	0.033	-9.0926	-0.3821
R^2 = 0.0099						
Wald chi2 (1) = 4.60						
Prob> chi2 = 0.0320						

Source: Study Result (2022)

The R-squared value for this model is 0.0099 in Table 4.10. Due to changes in credit size, commercial bank financial stability has varied by 0.99 percent. F statistics in Table 4.10 has a value of 4.60 and a p-value of 0.0320. As a result, the significance of the model is exaggerated. This shows that credit size has bearing on Kenyan commercial banking institutions' overall financial stability. The hypothesis that influenced this variable's direction is as follows:

H_{03}: ***Credit size has no significant effect on financial stability of Commercial Banks in Kenya.***

This hypothesis was developed and evaluated in light of the study's third particular purpose, which was to determine the impact of lending size on commercial banks' financial stability in Kenya. Table 4.10 shows that the coefficient and p-value are 1.2208 and 0.032, respectively. As a result, the study refuted the null hypothesis that credit size had no bearing on commercial banks' financial health in Kenya. The financial stability of Commercial Banks in Kenya increases by 1.2208 for every unit increase in lending size. This can be attributed to the notion that excessive lending is often associated with high profits that result from loan interest paid by customers. Increase in the size of credit issued by banks to customers' means high expectations on profitability level, hence avoiding commercial banks financial stability depletion.

In aligning the outcomes of the study with existing literature in the field of study, Mafumbo (2020) looked into the impact of credit management on commercial banks' financial performance in Uganda. Credit management has a substantial impact on Uganda's financial performance of commercial banks when regression analysis was used as an evaluation technique. The key drivers of commercial bank stability were investigated by Yensu *et al*. (2021). A panel model of assessment was used to examine eight (8) banks between 2008 and 2017. The findings revealed that net profit margin and bank size had a substantial positive impact on bank stability, however credit size interest cover had a significant negative impact on bank stability. Kouam (2021) investigated the impact of financial sector lending and central bank claims on banking sector liquidity and financial stability issues. The study examined financial sector domestic credit, capital ratio of bank assets, and central government claims on the banking sector's liquidity as metrics of financial stability, using an algorithm build. Banks' financial soundness was harmed by domestic credit and central government claims.

Mennawi (2020) evaluated the performance of Sudanese Islamic banks in terms of credit, liquidity, and the risk of financial leverage. Thirteen (13) Sudanese banks were involved with the panel regression technique. The study's findings revealed that liquidity had only a little impact on Islamic banks' performance in Sudan. Financial leverage and credit have a severe negative impact on the performance of Sudanese Islamic banks. The ratio of assets liquidity to total assets and liquidity risk has a positive impact on the performance of Sudanese Islamic banks. Being that these studies were conducted to determine their outcome with existing literature, there was a deviation in the findings of the studies. This discrepancies encountered in the course of these studies could be traced to the limitation placed on credits in each of the study area which limits the potential of some commercial banks in these countries.

4.4.4 Hypothesis Four

The presentation of the outcome of the last objective of the study as well as the hypothesis was investigated with the help of a simple linear regression model with earnings as the dependent variable. This gave rise to the documentation of the model result in Table 4.11.

Table 4.11: Regression Results

Financial Stability	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Earnings	8.5841	2.9192	2.94	0.003	2.8624	14.3058
_cons	1.8466	0.7832	2.36	0.018	0.3114	3.3819
R^2 = 0.0293						
Wald chi2 (1) = 8.65						
Prob> chi2 = 0.0033						

Source: Study Result (2022)

In Table 4.11, the R-squared value for this model is 0.0293. Commercial bank financial stability has changed by 2.93 percent due to fluctuations in earnings. Table 4.11 shows that F statistics has a value of 8.65 and a p-value of 0.003. As a result, the model's significance is not inflated. This demonstrates that earnings have an impact influence on the overall financial soundness of Kenyan commercial banking institutions. The following is the hypothetical statement that impacted the direction of this variable:

H_{04}: *Earnings have no significant effect on financial stability of Commercial Banks in Kenya.*

The fourth null hypothesis was developed and evaluated in relation to the fourth specific goal, which was to investigate the impact of earnings on the financial stability of Kenyan commercial banks. In Table 4.11, the coefficient and p-value were 8.5841 and 0.003, respectively. As a result, the study disproved the null hypothesis that earnings had no substantial impact on the financial health of Kenyan commercial banks. As a result, earnings have a considerable impact on the financial stability of Kenyan commercial banks. As a result, a unit increase in bank earnings resulted in an increase of 8.5841 in the financial

soundness of Kenyan commercial banks. The product of the study could be attributed to the numerous sources of income which the banks earn a number of returns on their investment in the study area. Despite commercial banks sole earning stream being lending to customers, the banks also diversify their sources of income to cushion the contagious adverse effect.

The outcome of this study concurs with those of past empirical studies. Adusei (2015) investigated the impact of earnings on bank stability in Ghana. Out of the entire number of banks available in 2013, the examined regression model's product found that earnings had a negligible impact on bank stability. Kumar (2016) investigated the impact of financial performance on bank financial stability using commercial banks in the United Arab Emirates. The study period covered 2008 to 2013, taking into account the banks' crisis and post-crisis periods. The ratios ROA and ROE were employed to assess financial success. The study's findings revealed that financial performance has a major impact on the financial stability of United Arab Emirates commercial banks. Furthermore, throughout the global financial crisis, the banks in the United Arab Emirates proved robust to the catastrophe. Uniamikogbo *et al*. (2021) looked into the impact of income diversification on the financial performance of Nigeria's deposit money institutions. The study used panel regression models to discover that wages had a substantial impact on Tobin's Q ratio of DMBs in Nigerian DMBs. Dembel (2020) looked on the factors that influence commercial bank stability in Ethiopia. Operational capability, earning quality, and asset quality all had a substantial impact on commercial bank stability when using random effect GLS regression. Liquidity, bank age, asset quality, and earning quality, on the other hand, had a considerable impact on bank efficiency. Furthermore, earning quality and operational competency had a positive impact on the stability of commercial banks.

Contrary of the results of this study on earnings and financial stability relationship, Hasanovica and Latic (2017) looked at the surplus liquidity factors in the banking sector of Bosnia and Herzegovina and Bosnia and Herzegovina. The study was conducted from 2006 to 2015, with nineteen (19) banks serving as the study population, accounting for 86 percent of the total banking sector in 2015. The study's research used the generalized method of moment, and the results demonstrated that earnings had a minor beneficial impact on bank liquidity. The study focused on the banking sector in Bosnia and Herzegovina and Herzegovina, which has a different regulatory structure than Kenya. The dissimilarities in the outcome of the study could be attributed to the various investment options of the different economies banking sectors as well as their regulatory frameworks which affect the outcomes of the studies.

4.5 Panel Regression Analyses

The panel regression technique was used in examining the effect of firm specific factors on financial stability of commercial banks in Kenya. This was done in view of each specific objective of the study.

Table 4.12: Regression Results

Financial Stability	**Coef.**	**Std. Err.**	**z**	**P>|z|**	**[95% Conf.**	**Interval]**
Capital Adequacy	-1.1755	4. 9945	-0.24	0.814	-10.9646	8.6136
Operational Efficiency	0.6377	0.0595	1.07	0.284	-0.0529	0.1805
Credit Size	-0.8950	0.4858	-1.84	0.065	-1.8472	0.0572
Earnings	12.4533	2.8505	4.37	0.000	6.8663	18.0402
_cons	6.2958	2.1437	2.94	0.003	2.0942	10.4974
R^2 =0.2581						
Wald chi2 (4) =24.21						
Prob> chi2 =0.0001						

Source: Study Results (2022)

Table 4.12 depicts an R-squared value of 0.2581. This represents 25.81 percent fluctuations in financial stability of commercial banks as a result of movements in firm characteristics (credit size, operational efficiency, capital adequacy as well as earnings). The

F statistics as show in Table 4.12 is value of 24.21 and 0.0001 as a corresponding p-value. This therefore implies the significance of the model. This further implies that the firm characteristics which were considered in this research were collectively significant in predicting the financial stability of Kenyan commercial banking institutions. Following the estimation of the simple linear regression based on the study objectives, the estimated coefficients of the simple regression models are infused in the functional regression equation as thus:

For objective one, the estimated simple linear regression is as thus:

$FINSTAB_{it} = 1.4098 - 5.8635CLL_{it}$

The second objective estimated model for the study is stated as:

$FINSTAB_{it} = 0.4868 + 0.02815OEY_{it}$

The estimated simple regression model which captured credit size is expressed as:

$FINSTAB_{it} = -4.7374 + 1.2208CSZ_{it}$

The estimated equation which expresses the relationship between earnings and financial stability is:

$FINSTAB_{it} = 1.8466 + 8.5841EAR_{it}$

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The presentation of the summary of results, conclusion and recommendations is done in this chapter. These are done in accordance with the findings of the study which are informed by the study objectives as well as null hypothesis. Additionally, suggestions for further studies are documented.

5.2 Summary of the Study

Instability in the banking sector is detrimental to the survival of the sector and the economy at large. The study sought to assess the effect of firm specific factors on financial stability of commercial banks in Kenya. The hypotheses were tested based on the specific objectives which were: To determine the effect of capital adequacy on financial stability of Commercial Banks in Kenya; to assess the effect of operational efficiency on financial stability of Commercial Banks in Kenya; to evaluate the effect of credit size on financial stability of Commercial Banks in Kenya; and to determine the effect of earnings on financial stability of Commercial Banks in Kenya. The study applied capital buffer theory, efficiency structure theory and market power theory, capital buffer theory, efficiency structure theory and financial intermediation theory. The assertions of these theories were used to underpin the relationship between firm specific factors and financial stability.

5.2.1 Effect of Capital Adequacy on Financial Stability of Commercial Banks in Kenya

The simple linear regression model was applied for the inferential analysis. The study is hypothesis was formulated and tested in view of the first specific objective which sought to determine the effect of capital adequacy on financial stability of Commercial Banks in Kenya. Capital adequacy had a positive effect on financial stability of Commercial Banks in

Kenya. Therefore, the underlying null hypothesis which stated that Capital adequacy has no significant effect on financial stability of Commercial Banks in Kenya was not rejected at 5% significance level. The insignificant and negative effect of capital adequacy on financial stability can be due to the notion that despite higher capital levels of banks being important in withstanding external shocks, higher capital requirements regulation can be detrimental to commercial banks.

5.2.2 Effect of Operational Efficiency on Financial Stability of Commercial Banks in Kenya

The second objective was to assess the effect of operational efficiency on financial stability of Commercial Banks in Kenya. The study found that operational efficiency has direct positive relationship without significant effect on financial stability of commercial banks in Kenya. As such, the study failed to reject null hypothesis which stated that operational efficiency has no significant effect on financial stability of commercial banks in Kenya.

5.2.3 Effect of Credit Size on Financial Stability of Commercial Banks in Kenya

In view of the third objective which sought to establish the effect of credit size on financial stability of Commercial Banks in Kenya, the study found that credit size has positive and significant effect on financial stability of commercial banks in Kenya. With respect to the fourth specific objective which sought to examine the effect of earnings on financial stability, the study rejected the null hypothesis which stated that earnings has no significant effect on financial stability of commercial banks in Kenya.

5.2.4 Effect of Earnings on Financial Stability of Commercial Banks in Kenya

The fourth objective was to examine the effect of earnings on financial stability of Commercial Banks in Kenya. The study established that earnings have significant positive effect on financial stability of commercial banks in Kenya. Therefore, the study rejected the

null hypothesis which stated that earnings have no significant effect on financial stability of commercial banks in Kenya.

5.3 Conclusion

The study made several conclusions based on the study findings. The study found that capital adequacy has no significant effect on financial stability of commercial banks in Kenya. As such, it was concluded that capital adequacy is not a significant predictor of financial stability of commercial banks in the case of Kenya. Increases in capital adequacy lead to the depletion of financial stability of commercial banks in Kenya.

The study found that operational efficiency has no significant effect on financial stability of commercial banks in Kenya. It was therefore concluded that operational efficiency is not significant in predicting on financial stability of commercial banks in Kenya. However, improvements in operational efficiency improve financial stability of commercial banks in Kenya.

The study found that credit size has significant effect on financial stability of commercial banks in Kenya. It was therefore concluded that credit size significantly predicts the financial stability of Commercial Banks in Kenya. Increases in credit supply by commercial banks deplete their financial stability due to increases in bad debts.

The study found that earnings have significant effect on financial stability of commercial banks in Kenya. As such, it was concluded that earnings significantly determined the financial stability of commercial banks in Kenya. Improvements in earnings which entail profitability lead to the improvement of financial stability of Commercial Banks in Kenya.

5.4 Policy Recommendations

Based on the findings and conclusions drawn, the study concluded that capital adequacy had insignificant effect on financial stability of commercial banks in Kenya. To this effect, the study recommends that a limit should be set to reduce the amount of capital, especially liquid assets of the banks to avoid investment extension into high risky ventures in Kenya.

The research also concluded that operational efficiency had affected the financial stability of commercial banks in n insignificant manner. Based on this outcome, the study recommends that banks should increase their operational efficiency through investment in new technology that reduces cost and maximizes the operational efficiency for profit maximization.

Credit size significantly predicts the financial stability of Commercial Banks in Kenya. In as much as lending activities constitute core aspects of financial intermediation by commercial banks, lending should be done with caution. Proper credit risk management system should be put in place which will help in assessing the credit worthiness of borrowers, analyze their repayment capabilities while also monitoring the progress of projects which loans were collected for.

The study further concluded that earnings significantly determined the financial stability of commercial banks in Kenya. It is therefore recommended that banks should strive towards increasing their assets holding while applying strategies geared towards improving earnings alongside as these will in turn bring about improvements in the financial stability of Commercial Banks in Kenya.

5.5 Limitations and Suggestions for Further Studies Policy Recommendations

The study sought to establish firm specific factors and financial stability relationships in the context of commercial banks in Kenya. As such, the findings are limited to commercial banks in Kenya. The study outcome can however serve as basis of comparisons to studies in other sector as well as other countries. The study is of the suggestion that additional empirical researches can be done on listed commercial banks as well as non listed commercial banks in Kenya. This will provide basis for having comparisons of the firm specific factors and financial stability relationships in the context of commercial banks in Kenya. Additional studies can be done focusing of Insurance firms which are also important players in the financial sector. Further studies can as well be carried out on Microfinance Banks in Kenya.

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APPENDICES

Appendix I: Research Data

BANK	YEAR	Earnings	Credit Size	Capital Adequacy	Management Efficiency	Financial Stability
1	**2014**	0.03588	5.09076	0.15361	0.84840	0.83785
1	**2015**	0.03728	5.10790	0.16797	0.81590	0.93051
1	**2016**	0.03212	5.17274	0.14687	0.85194	1.00912
1	**2017**	0.03052	5.24637	0.14496	0.92917	1.02430
1	**2018**	0.02607	5.24852	0.14270	0.90820	1.14633
1	**2019**	0.02286	5.27180	0.11614	0.77396	0.91154
1	**2020**	0.01824	5.31369	0.10324	0.80318	0.87537
2	**2014**	0.03072	5.01640	0.12756	1.08884	0.68892
2	**2015**	0.02985	4.95326	0.14933	0.97161	0.96564
2	**2016**	0.01867	5.01509	0.13033	1.67281	1.22619
2	**2017**	0.02255	5.07366	0.14100	0.93345	1.11327
2	**2018**	0.01800	5.13176	0.13604	1.02415	1.19671
2	**2019**	0.02198	5.19172	0.11830	0.88185	0.81270
2	**2020**	0.02126	5.22269	0.13038	1.01355	0.96554
3	**2014**	0.03845	5.15863	0.14035	0.90578	0.78679
3	**2015**	0.03118	5.25857	0.13252	0.94797	0.86975
3	**2016**	0.02775	5.32779	0.12747	0.86927	0.90519
3	**2017**	0.04190	5.38273	0.14836	0.78270	0.87402
3	**2018**	0.02863	5.40196	0.14483	0.84182	1.15224
3	**2019**	0.03039	5.41089	0.13523	0.78854	1.08854
3	**2020**	0.03170	5.47201	0.13961	0.83980	1.09863
4	**2014**	0.03594	4.88280	0.13587	0.54472	0.89908
4	**2015**	0.02941	4.97890	0.15757	0.52448	1.31683
4	**2016**	0.02510	5.10811	0.13313	0.58384	1.14020
4	**2017**	0.02939	5.15138	0.12174	0.57963	0.90710
4	**2018**	0.02036	5.19547	0.13086	0.63172	1.40420
4	**2019**	0.02056	5.18266	0.14186	0.43023	1.56687
4	**2020**	0.01990	5.21247	0.13979	0.48599	1.82823
5	**2014**	0.05308	5.20471	0.14593	1.45294	1.06585
5	**2015**	0.06200	5.28550	0.14699	1.40301	0.49549
5	**2016**	0.04421	5.36058	0.13963	0.75725	0.57590
5	**2017**	0.04187	5.34447	0.13495	0.78568	0.59152
5	**2018**	0.04588	5.34575	0.15463	0.84208	0.73162
5	**2019**	0.04521	5.36366	0.12740	0.77529	0.56043
5	**2020**	0.03935	5.47309	0.09743	0.78463	0.84819
6	**2014**	0.03796	4.96323	0.13325	0.52571	1.09790

6	**2015**	0.03952	4.95982	0.13927	0.49464	0.79762
6	**2016**	0.04832	5.01829	0.15935	0.50700	0.82639
6	**2017**	0.03956	5.01829	0.15041	0.60654	1.11056
6	**2018**	0.03090	5.10375	0.16194	0.72841	1.36339
6	**2019**	0.03181	5.15967	0.14924	0.81255	1.04716
6	**2020**	0.02877	5.22203	0.11633	0.63145	1.12255
7	**2014**	0.03977	5.29748	0.15745	0.77756	1.12942
7	**2015**	0.04184	5.41061	0.15334	0.80215	1.06735
7	**2016**	0.03158	5.51093	0.11994	0.75046	1.12002
7	**2017**	0.03862	5.57174	0.14385	0.69197	0.82697
7	**2018**	0.03675	5.61454	0.12953	0.76006	0.85822
7	**2019**	0.03859	5.63785	0.14147	0.71059	0.79829
7	**2020**	0.03732	5.72865	0.13377	0.68910	1.18439
8	**2014**	0.01909	4.64127	0.11149	1.18216	0.98749
8	**2015**	0.00666	4.83310	0.08418	2.48402	1.55873
8	**2016**	-0.00958	4.86238	0.07809	3.61628	-0.70513
8	**2017**	0.00008	4.82358	0.08716	3.78566	108.38084
8	**2018**	0.00267	4.83348	0.03186	3.51602	1.60616
8	**2019**	0.00135	4.82035	0.01817	1.25504	2.73852
8	**2020**	-0.00301	4.85155	0.05873	1.45747	-3.52387
9	**2014**	0.02638	4.91486	0.12494	0.75358	1.08025
9	**2015**	0.02937	4.99116	0.13733	0.73375	1.09190
9	**2016**	0.02570	5.04644	0.13734	0.49774	1.27704
9	**2017**	0.02863	5.05119	0.15681	0.66252	1.41029
9	**2018**	0.02661	5.07357	0.14341	0.79373	0.99651
9	**2019**	0.02459	5.07109	0.14371	#DIV/0!	#DIV/0!
9	**2020**	0.02257	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
10	**2014**	0.02055	5.12555	0.11713	0.62421	0.70053
10	**2015**	0.01853	5.10981	0.13001	0.65364	0.76917
10	**2016**	0.01650	5.08957	0.14205	0.89129	1.32022
10	**2017**	0.01448	5.12221	0.14088	0.75174	0.91829
10	**2018**	0.01246	5.14428	0.12496	0.92010	1.04790
10	**2019**	0.01044	5.12439	0.12455	0.86363	0.90516
10	**2020**	0.00842	5.14567	0.12210	0.88590	0.81664
11	**2014**	0.00640	4.58461	0.08542	0.64395	0.83934
11	**2015**	0.00438	4.66521	0.08003	0.74387	1.29013
11	**2016**	0.00236	4.73738	0.11764	0.50635	1.55502
11	**2017**	0.00033	4.75424	0.12512	0.67158	1.58231
11	**2018**	-0.00169	4.72123	0.13357	1.14651	4.74748
11	**2019**	-0.00371	4.69210	0.12133	1.67211	-2.40386
11	**2020**	-0.00573	4.71377	0.13030	1.63211	-16.35829
12	**2014**	-0.00775	4.10006	0.09033	0.90072	0.56648

12	**2015**	-0.00977	4.13075	0.08993	1.12427	1.14897
12	**2016**	-0.01179	4.19140	0.09888	1.02912	1.54871
12	**2017**	-0.01381	4.17673	0.10561	1.30544	1.27239
12	**2018**	-0.01584	4.21408	0.10031	1.29352	2.16282
12	**2019**	-0.01786	4.33203	0.10866	1.30730	6.37170
12	**2020**	-0.01988	4.34792	0.08469	1.21914	3.37119
13	**2014**	-0.02190	4.49263	0.09117	1.01780	0.88415
13	**2015**	-0.02392	4.59368	0.09813	1.32408	5.67502
13	**2016**	-0.02594	4.61358	0.10061	2.02809	-0.73544
13	**2017**	-0.02796	4.57380	0.09974	1.78697	-13.37795
13	**2018**	-0.02998	4.52620	0.09127	2.71315	21.82285
13	**2019**	-0.03201	4.41921	0.06976	2.27219	4.09755
13	**2020**	-0.03403	4.39759	0.03434	5.33099	-0.13240
14	**2014**	-0.03605	4.38340	0.14252	0.26774	0.41860
14	**2015**	-0.03807	4.46243	0.15052	0.27755	0.48286
14	**2016**	-0.04009	4.50870	0.16400	0.42125	0.88583
14	**2017**	-0.04211	4.58081	0.16291	0.29820	0.58465
14	**2018**	-0.04413	4.64289	0.16855	0.26004	0.60984
14	**2019**	-0.04615	4.63788	0.16289	0.27528	0.61436
14	**2020**	-0.04818	4.62973	0.16854	0.32952	0.58372
15	**2014**	-0.05020	4.03262	0.16116	0.11517	0.57379
15	**2015**	-0.05222	4.09475	0.17172	0.28159	0.73167
15	**2016**	-0.05424	4.25462	0.16479	0.31288	0.75281
15	**2017**	-0.05626	4.28677	0.17932	0.22841	0.83200
15	**2018**	-0.05828	4.31746	0.18832	0.22078	0.81879
15	**2019**	-0.06030	4.28224	0.19877	0.29186	1.02335
15	**2020**	-0.06232	4.14866	0.23685	0.21903	1.23418
16	**2014**	-0.06435	3.60670	0.19914	1.20619	3.68142
16	**2015**	-0.06637	3.81050	0.16748	1.45377	8.96401
16	**2016**	-0.06839	4.03209	0.13026	1.50068	6.66380
16	**2017**	-0.07041	4.02107	0.17082	2.45492	-3.33456
16	**2018**	-0.07243	3.99691	0.17765	5.08571	-1.41284
16	**2019**	-0.07445	3.95961	0.12584	#DIV/0!	#DIV/0!
16	**2020**	-0.07647	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
17	**2014**	-0.07849	4.39401	0.21660	0.61797	0.76652
17	**2015**	-0.08052	4.38989	0.22157	0.71662	1.15867
17	**2016**	-0.08254	4.44221	0.20929	0.55133	0.79659
17	**2017**	-0.08456	4.45090	0.17885	0.49113	0.60486
17	**2018**	-0.08658	4.58070	0.19380	0.57372	0.60466
17	**2019**	-0.08860	4.43545	0.21810	0.86729	0.84741
17	**2020**	-0.09062	4.42920	0.18755	0.88151	0.69235
18	**2014**	-0.09264	4.84979	0.08310	0.87620	0.06382

18	**2015**	-0.09466	4.96693	0.07838	0.83570	0.03169
18	**2016**	-0.09669	5.03215	0.08615	0.72893	0.12172
18	**2017**	-0.09871	5.02153	0.09033	1.19018	0.12152
18	**2018**	-0.10073	5.02954	0.08885	1.29327	0.18591
18	**2019**	-0.10275	5.07288	0.25098	0.00000	#DIV/0!
18	**2020**	-0.10477	5.41227	0.13457	1.44725	0.53470
19	**2014**	-0.10679	4.09747	0.05024	1.54605	0.37687
19	**2015**	-0.10881	4.03205	0.07216	1.81271	0.04338
19	**2016**	-0.11083	4.00668	0.07683	1.79496	-0.02963
19	**2017**	-0.11286	4.01355	0.05360	1.68798	0.07975
19	**2018**	-0.11488	3.99484	0.02631	2.53791	0.11320
19	**2019**	-0.11690	4.00117	0.00450	2.73095	0.07729
19	**2020**	-0.11892	4.00004	0.09708	3.21257	-0.18716
20	**2014**	-0.12094	3.66960	0.16404	0.55577	1.01640
20	**2015**	-0.12296	3.76989	0.12544	0.67244	-0.09359
20	**2016**	-0.12498	3.86853	0.13075	1.60743	-0.24799
20	**2017**	-0.12700	3.92226	0.19857	1.34122	1.68367
20	**2018**	-0.12903	4.00736	0.17933	1.48045	1.10631
20	**2019**	-0.13105	4.12840	0.14766	1.46681	0.35342
20	**2020**	-0.13307	4.22580	0.13170	1.60478	0.08858
21	**2014**	-0.13509	3.96839	0.09967	0.87209	-0.17499
21	**2015**	-0.13711	3.96997	0.10293	0.77030	0.07613
21	**2016**	-0.13913	3.95875	0.10299	0.59743	0.66962
21	**2017**	-0.14115	4.00359	0.10586	1.06004	1.72557
21	**2018**	-0.14317	4.02979	0.09908	1.12626	4.09745
21	**2019**	-0.14520	4.00134	0.11603	3.23894	1.06200
21	**2020**	-0.14722	4.05123	0.17247	0.35958	0.40254
22	**2014**	-0.14924	4.26886	0.13762	3.17869	0.22082
22	**2015**	-0.15126	4.38231	0.11057	2.67535	-0.46867
22	**2016**	-0.15328	4.48999	0.17325	1.71404	-0.76126
22	**2017**	-0.15530	4.43764	0.14772	14.40000	0.00703
22	**2018**	-0.15732	4.33155	0.10788	1.97026	0.27319
22	**2019**	-0.15934	4.16829	0.10333	2.03141	0.34162
22	**2020**	-0.16137	4.15512	0.09566	2.13849	0.68645
23	**2014**	-0.16339	4.01703	0.07814	1.11701	-1.84321
23	**2015**	-0.16541	4.11714	0.10167	2.01850	0.33047
23	**2016**	-0.16743	4.06856	0.10843	2.37092	0.10406
23	**2017**	-0.16945	3.94226	0.07151	3.81857	0.09134
23	**2018**	-0.17147	3.88013	-0.14011	7.48592	0.06848
23	**2019**	-0.17349	3.78597	-0.18118	9.04918	-0.13026
23	**2020**	-0.17551	3.77408	-0.20583	12.57971	-0.29937
24	**2014**	-0.17754	4.46138	0.12945	0.93820	-0.19639

24	**2015**	-0.17956	4.59858	0.16475	0.98808	-0.04611
24	**2016**	-0.18158	4.76324	0.13954	0.95604	-0.21429
24	**2017**	-0.18360	4.72823	0.17254	1.19126	-0.05074
24	**2018**	-0.18562	4.67143	0.15687	1.79378	0.20148
24	**2019**	-0.18764	4.67231	0.16002	1.46493	-0.82052
24	**2020**	-0.18966	4.76966	0.14259	1.26717	-0.44751
25	**2014**	-0.19168	3.99458	0.08874	4.84928	-0.94660
25	**2015**	-0.19371	4.00013	0.09405	6.02376	0.11685
25	**2016**	-0.19573	4.01982	0.09245	4.06562	0.06655
25	**2017**	-0.19775	4.00160	-0.09199	5.18246	-0.10925
25	**2018**	-0.19977	3.92023	0.08685	4.49689	0.30560
25	**2019**	-0.20179	4.37295	0.09840	3.62879	-0.54611
25	**2020**	-0.20381	4.48350	0.10799	1.84505	-0.82946
26	**2014**	-0.20583	3.94429	0.10084	3.47710	-0.90568
26	**2015**	-0.20785	3.99957	0.09314	3.00748	-3.29395
26	**2016**	-0.20988	4.06190	0.10395	4.53082	13.37379
26	**2017**	-0.21190	3.97713	0.09778	3.35506	2.99816
26	**2018**	-0.21392	4.04120	0.08105	2.21074	-1.29832
26	**2019**	-0.21594	4.02902	0.04334	1.70526	0.86845
26	**2020**	-0.21796	4.16462	0.03288	1.15017	-1.07194
27	**2014**	-0.21998	4.03189	0.17534	0.98915	0.68428
27	**2015**	-0.22200	4.10894	0.18607	0.79489	0.86386
27	**2016**	-0.22402	4.10809	0.17100	0.92176	0.81825
27	**2017**	-0.22605	4.12772	0.18441	0.88819	1.02366
27	**2018**	-0.22807	4.13818	0.31667	1.22048	12.14102
27	**2019**	-0.23009	4.12522	0.20037	1.10404	3.56395
27	**2020**	-0.23211	4.21195	0.18644	0.96839	1.79606
28	**2014**	-0.23413	3.97011	0.11640	0.68256	-0.63960
28	**2015**	-0.23615	4.01263	0.11866	0.74299	-0.77803
28	**2016**	-0.23817	3.99677	0.13581	0.83210	-0.88688
28	**2017**	-0.24019	3.98245	0.14614	0.26804	-0.86256
28	**2018**	-0.24222	4.01296	0.14598	0.32191	-1.36456
28	**2019**	-0.24424	3.98744	0.14951	0.81530	-0.97598
28	**2020**	-0.24626	4.00204	0.15403	0.90596	-1.17657
29	**2014**	-0.24828	4.18432	0.16619	0.86936	-0.76310
29	**2015**	-0.25030	4.14823	0.15473	0.81121	-0.71384
29	**2016**	-0.25232	4.20041	0.15687	0.87313	-0.50623
29	**2017**	-0.25434	4.22235	0.15610	0.82634	-0.81897
29	**2018**	-0.25637	4.30415	0.13562	1.21710	-3.30722
29	**2019**	-0.25839	4.37321	0.13035	0.93844	-4.20794
29	**2020**	-0.26041	4.41972	0.12137	0.89891	-3.56486
30	**2014**	-0.26243	3.53681	0.16032	1.20144	-0.56129

30	**2015**	-0.26445	3.53694	0.17939	1.05429	-0.44745
30	**2016**	-0.26647	3.72665	0.17278	0.92818	-0.61896
30	**2017**	-0.26849	3.72925	0.17073	0.82097	-0.85092
30	**2018**	-0.27051	3.75435	0.14806	0.67377	-1.32181
30	**2019**	-0.27254	3.80963	0.13303	0.73252	-2.01563
30	**2020**	-0.27456	3.87425	0.11586	0.73580	-1.93080
31	**2014**	-0.27658	3.59627	0.00000	0.34477	-0.64797
31	**2015**	-0.27860	3.60703	0.00000	0.46741	-0.54934
31	**2016**	-0.28062	3.62921	0.00000	0.48122	-0.52260
31	**2017**	-0.28264	3.65571	0.08347	0.45957	-0.69327
31	**2018**	-0.28466	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
31	**2019**	-0.28668	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
31	**2020**	-0.28871	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
32	**2014**	-0.29073	3.98511	0.13774	0.98283	-0.77418
32	**2015**	-0.29275	4.04976	0.14792	0.95790	-0.65680
32	**2016**	-0.29477	4.12441	0.19658	1.07604	-0.96648
32	**2017**	-0.29679	4.16101	0.18131	1.28090	-15.40107
32	**2018**	-0.29881	4.09096	0.17226	2.23209	0.98206
32	**2019**	-0.30083	4.14947	0.15299	2.51176	1.44566
32	**2020**	-0.30285	4.25003	0.13980	2.42612	-6.81508
33	**2014**	-0.30488	3.53580	0.19736	1.17937	-2.32914
33	**2015**	-0.30690	3.57043	0.20502	1.18450	-1.77074
33	**2016**	-0.30892	3.60304	0.21962	1.67541	-1.51701
33	**2017**	-0.31094	3.60369	0.22411	2.00461	1.50259
33	**2018**	-0.31296	3.51081	0.22320	1.83799	3.99967
33	**2019**	-0.31498	3.48629	0.22141	1.33600	-0.04390
33	**2020**	-0.31700	3.77561	0.12426	1.59912	-0.05772
34	**2014**	-0.31902	3.69478	0.18781	0.96212	-1.25795
34	**2015**	-0.32105	3.70569	0.17651	1.07692	-1.25488
34	**2016**	-0.32307	3.74679	0.23905	1.07051	-0.53881
34	**2017**	-0.32509	3.85181	0.27198	1.07692	-0.29039
34	**2018**	-0.32711	3.88880	0.26283	0.91364	-0.44792
34	**2019**	-0.32913	3.90407	0.24489	1.15728	-1.40698
34	**2020**	-0.33115	3.91503	0.21034	1.49869	11.84411
35	**2014**	-0.33317	3.62521	0.14634	0.73871	-2.33024
35	**2015**	-0.33519	3.73151	0.12632	0.87870	-1.88748
35	**2016**	-0.33722	3.80956	0.13775	0.61691	-1.85964
35	**2017**	-0.33924	3.79539	0.16495	1.26351	-2.50929
35	**2018**	-0.34126	3.80243	0.16298	0.99733	-2.35856
35	**2019**	-0.34328	3.79043	0.15930	0.91460	-1.23416
35	**2020**	-0.34530	3.88795	0.15897	0.94335	-3.38263
36	**2014**	-0.34732	4.43864	0.10010	0.60433	-0.75318

36	**2015**	-0.34934	4.54481	0.12240	0.55451	-1.20352
36	**2016**	-0.35136	4.61927	0.12847	0.57254	-0.98724
36	**2017**	-0.35339	4.60390	0.14909	0.62180	-0.77890
36	**2018**	-0.35541	4.59948	0.14621	0.73326	-0.61638
36	**2019**	-0.35743	4.58193	0.19600	0.76050	-1.40913
36	**2020**	-0.35945	4.61784	0.19738	0.68581	-1.34694
37	**2014**	-0.36147	3.77590	0.25970	0.98711	-1.09844
37	**2015**	-0.36349	3.82014	0.17715	0.99100	-2.68221
37	**2016**	-0.36551	3.86564	0.18304	0.96980	-2.08746
37	**2017**	-0.36753	3.84671	0.18815	1.06721	-3.47782
37	**2018**	-0.36956	3.86717	0.18339	1.33624	-9.62151
37	**2019**	-0.37158	3.88343	0.16022	#DIV/0!	15.35854
37	**2020**	-0.37360	3.84634	#DIV/0!	#DIV/0!	#DIV/0!
38	**2014**	-0.37562	3.92236	0.16857	0.47601	-1.11382
38	**2015**	-0.37764	4.04056	0.15165	0.48239	-1.27133
38	**2016**	-0.37966	4.11807	0.16693	0.52562	-1.00459
38	**2017**	-0.38168	4.18449	0.21644	0.52962	-1.33184
38	**2018**	-0.38370	4.27616	0.20639	0.59112	-1.52564
38	**2019**	-0.38573	4.35813	0.17516	0.89404	-2.74712
38	**2020**	-0.38775	4.38890	0.16157	0.87577	-2.55137
39	**2014**	-0.38977	2.90634	0.28544	0.81967	0.40617
39	**2015**	-0.39179	2.89487	0.15834	8.87692	0.86620
39	**2016**	-0.39381	3.44560	0.14227	5.93636	1.05169
39	**2017**	-0.39583	3.49513	0.38047	2.43891	-1.18056
39	**2018**	-0.39785	3.51970	0.33236	1.86984	-7.45244
39	**2019**	-0.39987	3.53970	0.14179	1.14696	-10.58612
39	**2020**	-0.40190	3.65447	0.13936	1.11749	-8.65600
40	**2014**	-0.40392	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
40	**2015**	-0.40594	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
40	**2016**	-0.40796	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
40	**2017**	-0.40998	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
40	**2018**	-0.41200	2.37107	0.32892	60.50000	0.26357
40	**2019**	-0.41402	3.50297	0.14861	5.08571	1.01339
40	**2020**	-0.41604	3.66922	0.11974	3.48588	0.84759
41	**2014**	-0.41807	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
41	**2015**	-0.42009	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
41	**2016**	-0.42211	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
41	**2017**	-0.42413	#NUM!	#DIV/0!	#DIV/0!	#DIV/0!
41	**2018**	-0.42615	2.46389	0.48544	65.61538	-0.12702
41	**2019**	-0.42817	3.32879	0.22358	5.63687	0.17948
41	**2020**	-0.43019	3.70885	0.11148	2.39059	0.72588

Appendix II: Research Permit

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SCHOOL OF GRADUATE STUDIES AND RESEARCH

KCA/SGS/Oct. 21/1 21st October 2021

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

RE: MARY NDINDA REG.NO 10/01122

It is my distinct pleasure to introduce to you Ms. Mary Ndinda who is a student in our institution pursuing a Master of Science in Commerce at the College of Business.

Mary is conducting a research on a topic titled: *"**Firm Specific Factors and Financial Stability of Commercial Banks in Kenya**"* which is part of the requirements of the program she is pursuing. The research as well as the data procured thereof shall be used for academic purposes only.

Any assistance accorded to her is highly appreciated.

In case of further inquiry, do not hesitate to contact the undersigned.

Yours faithfully,

Dr. Nyaribo Misuko
Dean, School of Graduate Studies & Research