

**COMPETITION, PROFITABILITY, RISK-TAKING BEHAVIOUR  
AND STABILITY OF COMMERCIAL BANKS IN KENYA**

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## DECLARATION

This thesis is my original work and has not been presented elsewhere for a degree or any other award.

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## **DEDICATION**

This thesis is wholeheartedly dedicated to my family and the Muhoro family, who have been my sources of inspiration and strength throughout this research.

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## **LIST OF ABBREVIATIONS/ ACRONYMS**

<b>ARDL</b>	Autoregressive Distributed Lag Model
<b>CBK</b>	Central Bank of Kenya
<b>CVH</b>	Chatter Value Hypothesis
<b>DFE</b>	Dynamic fixed effects
<b>GDP</b>	Gross Domestic Product
<b>HHI</b>	Herfindal-Hirschman Index
<b>KBA</b>	Kenya Bankers Association
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>MG</b>	Mean Group
<b>NPL</b>	Non-performing Loans
<b>OLS</b>	Ordinary Least Squares
<b>PMG</b>	Pooled Mean Group
<b>ROA</b>	Return on Assets
<b>ROE</b>	Return on Equity
<b>TBTH</b>	Too Big to Fail Hypothesis

## DEFINITION OF TERMS

<b>Commercial Bank</b>	A financial institution whose primary role is accepting deposits, advancing business loans, and offering basic investment products
<b>Competition</b>	This is the struggle for banking customers and the establishment of conditions for other participants that allow them to have a decisive influence on the individual bank.
<b>Profitability</b>	A measure of the amount by which a company's revenue exceeds its relevant expenses.
<b>Risk-taking Behavior</b>	The deliberate execution of risk-based operations by banks.
<b>Stability</b>	The steady state in which an individual bank's financial system efficiently performs key economic functions and dissociates from insolvency or actual failure.
<b>ROA</b>	A financial metric that measures a company's profitability relative to its total assets
<b>ROE</b>	A financial metric that assesses profitability in relation to shareholders equity

## **ABSTRACT**

Stable commercial banks stimulate economic growth by facilitating value exchanges. The stability of commercial banks in Kenya has been a concern because of the waves of collapse that have dotted the history of the banking sector. Studies on the drivers of bank stability are essential for providing policy directions to improve bank stability. Due to existing conflicting empirical evidence, this study further analyzes the relationship between competition, profitability, risk-taking behavior, and stability of commercial banks in Kenya. The study was guided by three theories: Too Big to Fail Theory, Agency Theory, and Competition Fragility Hypothesis. This study employed a causal research design with 31 licensed commercial banks in Kenya as the target population. The study extracted data from published financial statements of licensed commercial banks for the period 2001 to 2020. The data were analyzed using the Generalized Method of Moments (GMM). The study finds that increased competition and reduced market concentration result in a more stable banking sector. The competition stability nexus is confirmed by the study, implying that measures should be implemented to foster competition and increase profitability among banks. This includes reduced barriers to entry and optimal capital requirements. A significant positive relationship between profitability and stability of commercial banks was found, implying that more profitable banks have a lower affinity for risk-taking, thus making them more stable. The results indicate that banks' risk-taking behavior has an inverse relationship with stability. The study contributes valuable insights to the existing literature by enhancing the understanding of banking industry performance and aids policymakers, investors and banks in formulating effective strategies. Measures should be implemented to ameliorate excessive risk-taking by banks. The employment of elaborate exposure monitoring systems with clear warning signs is encouraged.

# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of the Study

Banks play a significant role in the economy. Globally, banks play an essential role in intermediation by providing saving opportunities to people with surplus resources and funding to economic agents with investment prospects. Banks aid a country's capital accumulation, thus fostering economic growth (Tan, 2016). They facilitate the movement of money from surplus units to deficit units, contributing to the optimal resource allocation in an economy. Commercial banks are dominant players in the banking industries. As such, they play a critical role in the growth of the industry and commerce. Commercial banks are custodians of Kenya's rich resources, which are vital for economic progress (Clark, 2021).

As the dominant institution in the sector, efficiently operating commercial banks reflects the overall stability of the financial sector (Robert & Duc, 2020). The stability of commercial banks entails a financial intermediation mechanism that works smoothly and builds trust among users (Kiemo et al., 2019). Stable commercial banks catalyze economic growth and facilitate the exchange of value (Swamy, 2014). Establishing a stable, well-functioning banking system that is not prone to crises and that supports financial transactions at all times is critical (Clark & Dolan, 2021). However, similar to other organizations, increased globalization, internationalization, and advances in information, communication, technology, and trade liberalization have exposed commercial banks to external shocks (Bahri & Hamza, 2020).

Commercial banks must scan their operating environment ahead of time and devise ways to mitigate the severity of their exposure to scenarios that could threaten their financial viability (Jahn & Kick, 2019). While there is consensus among scholars and policymakers on the importance of a stable banking sector in an economy, the debate on the determinants of bank stability and their optimal levels remains unsettled. This is evidenced by banking crises that dot the history of the global financial sector, despite

the continued review of the regulatory framework. The many drivers of the stability of commercial banks include competition, profitability, and risk-taking behaviors.

Competition between commercial banks is essential for improving the intermediation performance. Competition can correct the negative aspect of intermediation inefficiency in the long run. This aspect manifests in outstanding bank profitability due to the high rate of interest spread (Flamini et al., 2009). The competition among commercial banks has a profound impact on various aspects such as entrepreneurial activity, credit accessibility, resource allocation, development of the productive sector, economic growth, and stability of the banking sector (Mulyaningsih & Daly, 2017). Moreover, economists maintain the belief that a dynamic process of competition ensures equalization of profits across diverse economic activities (Amidu & Wolfe, 2013).

The literature documents two approaches for assessing competition in banking: structural and non-structural. Structural measures are premised on the logic that if the market is more concentrated, it is easier for banks to operate in an uncompetitive manner (Moyo, 2018). There are two popular measures of concentration: concentration ratio and Herfindahl-Hirschman index (HHI). Concentration ratio has a shortcoming in that it considers only a few large banks, whereas the HHI includes all banks in the measurement. The most popular nonstructural measures of bank competition are Panzar and Rose (1987) H-statistics and Lerner (1934) index. H-statistics have the shortcoming of short-termism and are inappropriate at the bank level (Mirzaei, 2019; Repkova, 2012; Wang et al., 2014). The Lerner index is a direct measure of market power (an inverse measure of competition) that focuses on a firm's ability to price above its marginal costs. This is more appealing because it is computed at the firm level. This study employed both HHI and Lerner indices.

Competition influences stability in two ways. First, competition reduces bank profitability, encouraging banks to respond to declining profits by taking excessive risks and operating with low capital buffers, thus compromising bank stability. This is based on the competition fragility perspective (Kabir & Worthington, 2017a). Second, according to the competitive stability view, competition promotes bank stability. The

channel is as follows: competition lowers lending rates- borrowers' default rates decline (based on the idea that high borrowing rates result in the risk of adverse selection and moral hazard). With low default rates, banks' profitability increases, promoting bank stability (Pessarossi et al., 2020).

The effectiveness of commercial banks is based on their capacity to make profits. From an empirical perspective, the literature on profitability's impact on bank stability is contradictory. Profitability can be beneficial to stability up to a certain point, but beyond that point, it may become detrimental (Martyno, 2015). However, whether increased bank profitability promotes financial stability has not been widely researched (Omware et al., 2020). The continued uncertainty surrounding the correlation between profitability and bank stability motivates the need for further evidence. A more successful core business permits the bank to borrow more and participate in riskier side businesses wider with leverage constraints. Thus, more profitable commercial banks are said to be more involved in risk-taking behavior. This occurs especially when the funding of their side projects takes precedence over the funding of their significant activities (Moudud-Ul-Huq et al., 2020).

Commercial banks' risk-taking behavior is a cause of financial and economic instability. Commercial banks deliberately take risks, which may lead to problems, such as bank runs. In addition, other problems, such as the instability of commercial banks and eventually the entire economy, may occur when commercial banks are involved in risk-taking behaviors (Martyno, 2015). Commercial banks' risk-taking behavior encompasses their motivations, decision-making, and execution of risk-based activities, and is a consequence of the banks' members' combined efforts. Shareholders, creditors, management, government, and others were among the participants (Panwar et al., 2017). They have different preferences for banks to engage in high-risk behaviors because of their shared interests and responsibilities (Bernard, 2014).

The result of the different participant preferences is a pinnacle manifestation of commercial banks' risk-taking behavior (Rajan, 2006). In the run-up to the disaster, banks widened their balance sheets to participate in hazardous activities alongside their



profitable core businesses. For instance, banks increased their exposure to risky assets such as mortgage-backed securities to boost their returns (Wheelock, 2011). Banks also increased their reliance on short-term funding and leverage to increase their returns (Yald & Bazzana, 2010). These activities led to increased risk-taking that ultimately resulted in financial crises in many countries.

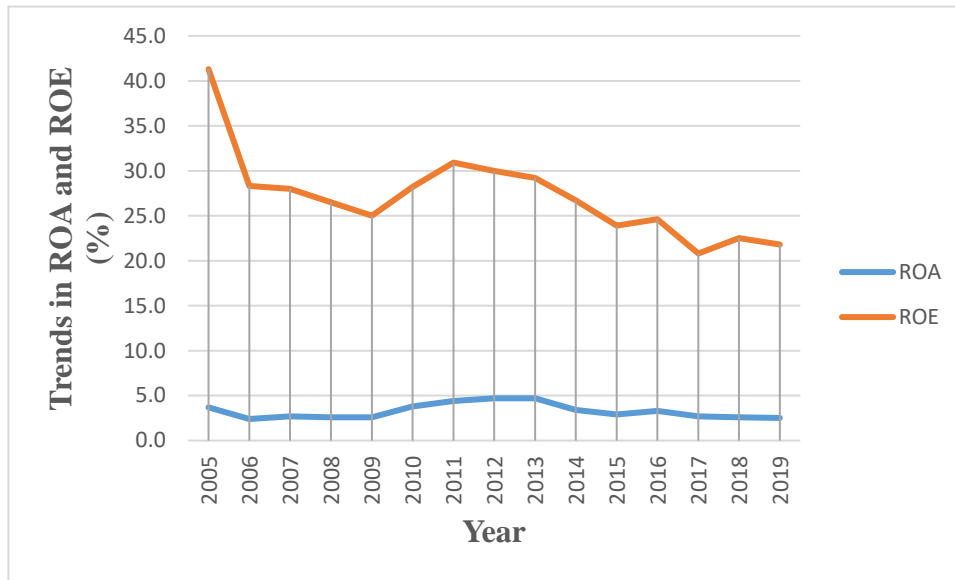
The preceding explanations establish a robust theoretical and empirical basis for understanding the connection between competition, profitability, the propensity for risk-taking, and overall stability. The four variables are also seen to relate to each other, such that competition influences the profitability level of commercial banks, which also influences their risk-taking behavior. This is the first study to examine the relationship between commercial banks' profitability, competition, risk-taking behavior, and stability in Kenya. This study also contributes to the existing literature that will be essential, especially for developing economies.

### **1.1.1 The Banking Industry in Kenya**

The largest and most significant segment of the financial industry in Kenya are commercial banks, regulated by Kenya's Central Bank (CBK, 2018). The Kenyan banking industry accounts for the largest proportion of the financial sector at more than 50% of nominal GDP, while the rest of the sectors contribute less than 10% each. According to statistics, the trends in the share of financial sector assets to GDP have been unstable; for example, from 2015 to 2018, 56%, 52%, 49% and 50% (CBK, 2015, 2017).

By utilizing a weighted composite index, Kenyan commercial banks are categorized into three distinct peer groups. As of December 31, 2019, nine prominent banks held a collective market share of 75%, while nine medium-sized banks accounted for 17% of the market, and 21 smaller banks represented an aggregate market share of 8% (KBA, 2019). The growth in large banks' market share is accompanied by a decline in the market share of medium and small banks. Small- and medium-sized banks recorded a decrease in their market share from 9% to 21% in December 2018 to 8% and 17%, respectively (CBK, 2018). This indicated a reduction in competition. Figure 1.1 shows

the movements in the return on assets (ROA) and return on equity (ROE) of commercial banks in Kenya.



**Figure 1.1: Trends in ROA and ROE**

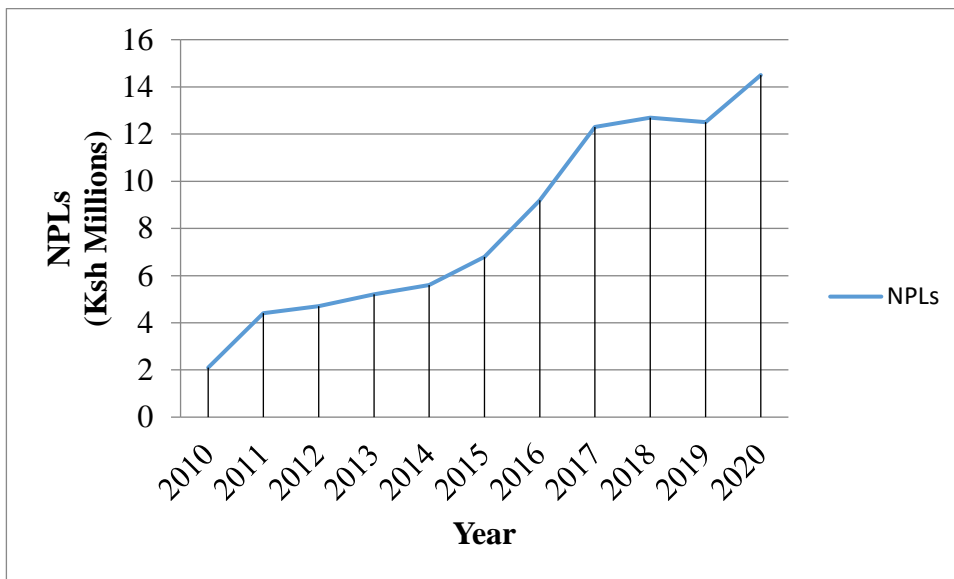
**Source: Bank Supervision Annual Reports**

ROA and ROE are indicators of a bank's profitability. There has been a general decline in ROA and an unstable ROE, as shown in Figure 1.1. The general decline in ROA and inconsistent ROE between 2015 and 2019 are associated with a decline in profitability. Statistically, the commercial banks' ROA declined from 3.4% in 2014 to 2.9% in 2015, 3.3% in 2016, 2.7% in 2017, and 2.6% in 2018 to 2.5% in 2019. The trend of ROE was inconsistent over the years, declining from 22.5% in 2018 to 21.8% in 2019 (CBK, 2015, 2017, 2018, 2019). Thus, from the above statistics, there is a clear indication that commercial banks were not experiencing consistent profits; thus, they may be unstable. Figure 1.2 shows the trends in the NPLs of commercial banks in Kenya.

The decline in ROA and ROE over the years is likely due to a number of factors. First, the cost of doing business has increased significantly in the banking sector due to stringent regulations, such as Basel III. This has caused banks to increase their

operational costs and thus reduce their profits. Second, competition in the banking sector has increased. The increase has caused banks to offer more competitive products and services, resulting in a decrease in their profits. Third, the low-interest rate environment has also caused banks to experience a decline in their profits. Low-interest rates reduce the interest income of banks, thus reducing their profitability.

The decrease in ROA and ROE observed over time reflects a decline in the profitability of commercial banks. This decline can be attributed to factors such as rising operational expenses, intensified competition, and a prevailing low-interest rate environment. Thus, banks should look for ways to improve their profitability by optimizing their operations, increasing their efficiency, and adopting innovative strategies.



**Figure 1.2: Trends in NPLs**

**Source: Bank Supervision Annual Reports**

In Kenya, the banking industry's high proportion of non-performing loans has hampered economic stability (Ombaba, 2020). Over the years, NPLs have been noticeable for their persistent increase, as shown in Figure 1.2. During two out of the three years (2016-2018), the gross levels of commercial banks as a percentage of gross loans declined to single-digit figures. Specifically, by the conclusion of 2017 and 2018, the figures reached 12.3% and 12.0% respectively, compared to 9.4% at the end of 2016 (KBA,

2020). According to the Financial Stability Report (KNBS, 2020), there was unstable growth in deposits across banks. Deposits at large banks increased by 14.5% in 2019 compared to 8.4% in 2018 and 11.1% in 2017. The loan-to-deposit ratio in the banking sector dropped in the previous five years, averaging 78.6% between 2015 and 2019. These statistics are an indicator of the financial instability faced by commercial banks.

There are several factors that contribute to the high levels of NPLs in the banking sector in Kenya. First, the lack of sufficient credit risk management mechanisms and systems in place is a major factor. Banks are highly exposed to credit risk, yet they lack the necessary systems to adequately manage it. Second, most commercial banks are characterized by an excess of non-performing loans due to inadequate loan documentation and appraisal procedures. This has been compounded by a lack of investor confidence in the banking sector, as well as low economic growth and low levels of financial literacy amongst the population. Third, the banking sector is characterized by a culture of moral hazard, whereby banks are willing to lend to borrowers who may not have the capacity to repay their loans.

## **1.2 Statement of the Problem**

The stability of Kenya's banking system is a source of worry. The waves of bank collapse experienced in the country over the years paint a gloomy image. Kenya has experienced banking problems since 1986 when some commercial banks failed (Muriithi et al., 2016). These crises resulted from increased risk-taking behaviors that led to six banks collapsing between 2000 and 2006 (Waweru & Kalani, 2009). Furthermore, the occurrence of the collapse of three commercial banks in Kenya, namely Dubai Bank, Imperial Bank, and Chase Bank, between 2015 and 2016, highlights the failure of managers to adequately assess and address banking risks. Recent bank failures in Kenya have been linked to internal causes, such as thin capitalization, credit risks, liquidity risks, low profitability, bad corporate governance (high insider loans), and external issues, such as high inflation, low economic growth rate, and heavy competition (Brownbridge, 2015; Kiemo et al., 2019).

Commercial banks' profits have been volatile over the past five years. In 2015, profits decreased by 5% and further declined by 9.6% in 2017. In 2018, the profits increased by

14.6% and later by 4.2% in 2019 (CBK, 2015, 2017, 2018, 2019). These statistics indicate the instability of commercial banks. In order to maintain the soundness of the financial industry and effectively fulfill its role as a financial intermediary, each individual financial institution within the industry must adopt appropriate strategies to safeguard its financial stability (Jahn & Kick, 2019).

Kenya presents an interesting case study on the competition and stability of banks. First, as is the case in many developing economies, commercial banks dominate the financial sector. Thus, the soundness of a financial system is highly dependent on bank stability. Second, waves of bank collapse experienced in the country paint a gloomy picture with more than 40 banks collapsing over the last three decades (Muriithi et al., 2016). Additionally, the Kenyan banking sector has experienced a revolutionary transformation in terms of competition over the past two decades by the expansive growth of the mobile money service "Mpesa." It is estimated that, on average, money transacted through the platform annually is 85% of the GDP, with about 70% of the population using the service, making Kenya an African leader (Aleksandrovich & Upadhyaya, 2015).

Despite the importance of commercial bank stability, empirical evidence is insufficient. Previous studies have focused on the competition, profitability, and stability of commercial banks (Amidu & Wolfe, 2013; Kiemo et al., 2019; Mdoe, 2017; Mulyaningsih & Daly, 2017). Other studies have evaluated risk and resilience (Ghenimi et al., 2017; Kasman & Kasman, 2015; Robert & Duc, 2020; Tan, 2016). However, few comprehensive studies have focused on how competition and risk-taking behavior affect bank stability in developing countries. This study advances the existing literature in several ways by looking into the insufficiently researched areas of regional variations, macroeconomic factors, corporate governance practices and regulatory changes which affect stability of commercial banks. First, it employs structural and nonstructural measures of competition and ex post standards of banks' risk-taking behavior. Second, contrary to previous studies, this study uses various firm-level measures of bank stability. Finally, it provides essential empirical evidence from the context of developing economies, whose institutional and macroeconomic environments differ significantly from those of developed economies (Phan et al., 2019).

### **1.3 Research Objectives**

The study examined both general and specific objectives.

#### **1.3.1 General Objective**

The general objective of this study was to investigate the effects of competition, profitability, risk-taking behavior, and the stability of commercial banks in Kenya.

#### **1.3.2 Specific Objectives**

The study had the following specific objectives.

- i. To determine the effect of competition on stability of commercial banks in Kenya.
- ii. To establish the effect of profitability on stability of commercial banks in Kenya.
- iii. To assess the effect of risk-taking behavior on stability of commercial banks in Kenya.

### **1.4 Research Hypotheses**

This study was guided by the following Hypothesis.

- i. There is no effect of competition on stability of commercial banks in Kenya.
- ii. There is no effect of profitability on stability of commercial banks in Kenya.
- iii. There is no effect of risk-taking behavior on the stability of commercial banks in Kenya.

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

The relationship between commercial banks' profitability, competition, risk-taking behavior, and stability in Kenya is of enormous importance to various groups, including academics, researchers, economic policymakers, and the nation at large. For policymakers, the results of this research will inform them together with the programmers and the government on the appropriate areas to intervene in formulating macroeconomic and fiscal policies necessary for improving stability in commercial banks in line with Vision 2030, which includes stimulation of a double-digit economic growth rate.

The study topics significance lies in its contribution to financial stability, economic growth, and development, making it worth attention beyond Kenya's borders. The study contributes valuable insights to the existing literature by enhancing the understanding of banking industry performance and aids policymakers, investors and banks in formulating effective strategies. The results of this study enrich the debate on commercial banking stability and contribute to existing theory and literature. Other academics will also use the information gathered in this study to shed light on areas not covered by commercial banks. This research can also be used as a reference material for scholars when conducting related studies.

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

The research was confined to 31 Kenyan commercial banks between 2001 and 2020. The study period was to enable comparisons and drawing of insights from related studies with similar time frames.

### **1.7 Limitation of the Study**

The findings of the study are limited to lack generalizability to other banking systems or economies beyond Kenya due to the unique characteristics of the Kenyan banking industry and its specific contextual factors. Moreover, the dynamic nature of the banking sector, influenced by economic conditions, technological advancements, and regulatory shifts, might not be fully captured by the study's static analysis.

## **CHAPTER TWO**

### **LITERATURE REVIEW**

#### **2.1 Introduction**

This section discusses other studies on the relationships among profitability, competition, risk-taking behavior, and stability. It explains the theoretical framework, reviews the variables, summarizes the literature review, and identifies research gaps.

#### **2.2 Theoretical Review**

This study is based on three theories. These theories were the competition fragility hypothesis, too big to fail theory, and agency theory.

##### **2.2.1 Competition Fragility Hypothesis**

The competition fragility hypothesis also called the ‘charter value’ concept of banking was modeled by Marcus (1984), Chan, Greenbaum and Thakor (1986), Keeley (1990) and Beck (2008). According to this theory, there is a negative relationship between banking rivalry and stability. This implies that increased bank competition leads to increased bank fragility. Beck, (2008) states that banks have more excessive risk-taking incentives in a more competitive environment where profits are under pressure. As a result, the fragility of banks increases. In addition, banks receive less information when dealing with borrowers in competitive markets, which limits their incentives to screen applicants. As a result, the stability is also harmed. On the other hand, banks make more profit and money in a low-competition market, giving fewer incentives to take unnecessary risks. This helps maintain financial stability.

Competition in a market can lead to fragility and instability if the market is not properly regulated. Competition in a market can be beneficial to consumers, as it helps to drive prices down. However, if the market is not regulated properly, competition can lead to fragility and instability. This can happen when firms in the market engage in practices such as price-fixing, predatory pricing, and other forms of collusion. In such cases, the market becomes less competitive, leading to higher prices and reduced quality of goods and services (Stockhammer, 2022). This can lead to a decrease in consumer choice and



an increased risk of market failure. Additionally, without proper regulation, firms may engage in practices that are unethical or even illegal, creating an environment of instability and fragility.

This hypothesis holds that a lack of competition can lead to an increasing in the concentration of power in the hands of a few, allowing them to benefit from higher prices, higher profits, and more control over the market. Competition can help prevent these issues from occurring, as it helps ensure that market power is dispersed and that prices remain competitive (Whited et al., 2021). Furthermore, competition can lead to increased efficiency, which can help to reduce costs and improve the overall quality of products and services.

Economist Robert Shiller in the 1980s proposed that the structure of stock markets makes them prone to overreaction and speculative bubbles, which can lead to increased financial fragility. Shiller argues that the increase in volatility, as well as the increase in the speed of information transmission and the expansion of financial instruments, has increased the competitive pressure among investors to take greater risks and move their money more quickly than before, leading to greater financial fragility (Stockhammer, 2022). This hypothesis has been tested and supported by various empirical studies.

The competition fragility hypothesis suggests that competition among banks can reduce market discipline, leading to excessive risk taking, reduced lending, and greater financial fragility. This hypothesis is based on the idea that increased competition can lead to reduced profit margins, forcing banks to take more risk to remain profitable (Moudud-Ul-Huq, 2020). As competition increases, banks are less likely to monitor each other's risk-taking behavior, leading to a greater likelihood of systemic risk. Therefore, the competition fragility hypothesis suggests that high levels of competition among banks can lead to greater financial fragility and instability.

The prevailing thought is that higher deposit rates raise the possibility of bank runs, while smaller margins exacerbate excessive risk-taking (Mitra-Kahn, 2005). According to this theory, deregulation, which leads to more quality entrance and competition,

increases fragility. According to Boyd and De Nicoló (2005), banks would earn higher rents in more consolidated markets. Banks charge borrowers higher interest rates, pressuring them invest in risky projects to fulfill the higher interest rate criterion. In response, banks' asset default likelihood would increase, meaning that decreased competition would lead to instability in the banking sector.

Another point made in the competition-fragility argument is that there is disagreement about whether or not more concentrated banking systems have larger banks allowing them to diversify their assets more effectively (Beck, 2008). However, this notion is based on the effect of concentration on stability rather than on the competition-stability link. Nonetheless, this is a significant side effect of the market structure. If the market is more concentrated, then the largest banks will likely be able to diversify their assets more effectively. This is because they will have access to more capital and will be able to take greater risks with more confidence. The increased ability to diversify assets may, in turn, lead to reduced fragility in the system.

The Competition Fragility Hypothesis suggests that increased competition in the banking sector can lead to greater overall fragility in the sector. This hypothesis is supported by evidence that increased competition often leads to lower margins and profits as well as increased pressure on smaller banks to remain competitive (Vujanović & Fabris, 2021). This increased pressure can lead to less prudent lending and risk management practices, leading to greater instability in the sector. Additionally, increased competition can lead to a decrease in the availability of credit to customers, which can lead to financial instability.

As such, this hypothesis has clear implications for commercial banks because increased competition can lead to increased risk and instability, both of which can have negative consequences for the banking sector. In Kenya, this hypothesis can be seen in the consolidation of the banking sector, with many small banks being forced to close or merge with larger ones because of increased competition. As such, commercial banks in Kenya need to be aware of the risks associated with increased competition and adjust their risk-management strategies accordingly (Blandina et al., 2021).

### **2.2.2 Too Big to Fail Theory**

Stewart McKinney developed too big to fail (TBTF) theory in 1980s. The 1994 Continental Illinois Bank rescue case and the 2007-2008 global financial crises made the Too Big to Fail Theory gain significant attention and prominence. Before the financial crisis of 2007-2008, Continental Illinois was the largest bank failure in the US history. Large banks have been accused of believing that they are TBTF, forcing them to conduct unnecessarily risky acts (Barth & Wihlborg, 2015). According to this theory, certain organizations, particularly financial institutions, are so vast and intertwined that their failure would be catastrophic to the larger economic system. Consequently, governments must protect them when they face probable failures (Gorton & Tallman, 2019). Because a huge bank's failure could result in significant losses for other businesses, governments are cautious of allowing large banks to fail.

The failure of large banks can also substantially impede the functioning of the financial system, posing a threat to the economy as a whole (Wheelock, 2011). The TBTF theory has been controversial in the financial sector. While TBTF may help to protect the economy from large-scale financial crises, it can also lead to moral hazard, increased systemic risk, and a lack of competition. It is important that governments take a balanced approach to the issue, ensuring that the benefits of protecting large banks outweigh the potential costs.

The theory states that certain financial institutions are so large and interconnected that their failure poses a significant threat to the financial system and the economy. These institutions are deemed 'too big to fail' because of the potential economic damage that could result from their collapse (Koleśnik & Dąbkowska, 2021). As a result, governments and central banks are often forced to intervene to prevent the failure of these institutions. This intervention is often in the form of bailouts and other forms of financial support from the government. This theory has become central to the debate surrounding the 2008 financial crisis (García-Alcober et al., 2019).

Too big to fail (TBTF) theory is important for financial markets because it suggests that certain large financial institutions are so interconnected with the global economy that

their failure could lead to a global financial crisis. The theory suggests that these large financial institutions should be supported by government intervention and bailouts, if necessary, to protect the global economy from potentially catastrophic collapse (Asiama & Amoah, 2019). Too big to fail (TBTF) theory is important for financial markets because it suggests that certain large financial institutions are so interconnected with the global economy that their failure could lead to a global financial crisis.

This theory holds particular relevance in the context of Kenya due to its significant number of commercial banks, as the failure of any of these banks can have a substantial impact on the economy. TBTF theory suggests that the government should intervene to protect these banks from failure and maintain the stability of the banking sector (Wheelock, 2011). This can be done through a combination of regulations, capital requirements, and other measures that ensure that banks are well managed and financially sound. In addition, the government can provide financial assistance to these banks in the event that they become insolvent. By doing so, the government can ensure that the banking sector remains stable and that banks continue to serve the needs of Kenyan people (Nelly et al., 2019).

This theory is essential to this study because it states that banking system instability may constrain credit availability. Banks, for example, may respond to their deterioration by lowering overall lending amounts and shortening loan repayment terms. Since there is no finance for expansion, small businesses with no other option but to take credit are forced to reduce their production and employment. If they spread quickly, all of these issues could have serious ramifications for the economy and the financial system (Stankute, 2011). The view of commercial banks, more so the large banks worldwide, is the same as that of Continental Illinois Corporation.

Commercial banks are highly capitalized and hence expected to be stable. Shareholders fear that a large commercial bank collapse would destabilize the entire financial system and, hence, the entire economy (Barth & Wihlborg, 2015; Gorton & Tallman, 2019). While the theory argues that imposing strict size limits on individual financial institutions is the only solution to eliminate the TBTF problem and its associated moral

hazard, certain research indicates that such size limits could raise the cost of banking services by hindering banks from benefiting from economies of scale (Wheelock, 2011). TBTF theory has been widely criticized by those who argue that it encourages moral hazard, as it provides an incentive for financial institutions to take excessive risks, knowing that they will be bailed out if they fail. In addition, critics contend that TBTF theory is unfair and creates an uneven playing field, as large financial institutions are able to take risks that smaller institutions cannot and do not have the same access to government support. Despite these criticisms, TBTF theory remains an important consideration in global financial regulation and policy. The 2008 financial crisis demonstrated the potential consequences of allowing TBTF institutions to fail, and governments around the world have since sought to strengthen financial regulations and increase the oversight of major financial institutions.

### **2.2.3 Agency Theory**

The agency theory was formulated by Jensen and Meckling (1976). They propose that a company's governance is based on conflicts of interest between its owners (shareholders), management, and key debt finance suppliers. Each group has its own set of goals and interests. Jensen and Meckling (1976) came up with the definition of agency relationship as a sort of contract between a company's owners and its managers, in which the owners (principal) choose an agent (managers) to administer the company on their behalf. Owners must give management decision-making authority as part of this agreement (Zogning, 2017).

Agency theory describes the relationship between principals and agents in business or economic transactions. This theory postulates that the principal-agent relationship is a form of delegation in which the principal delegates decision-making authority to an agent (Karimi et al., 2017). The agent is expected to act in the principal's best interests but may have different goals and objectives than the principal. The agent may also be tempted to act in a manner that benefits himself/herself rather than the principal. The principal-agent relationship is characterized by a conflict of interest between the two parties, and agency theory proposes ways to manage this conflict. The theory outlines how principals can motivate agents to act in the principal's best interests, how to design

incentives that align the interests of the principal and agent, and how to monitor agent behavior (Clark & Dolan,2021).

The application of agency theory to Kenya's commercial banks can provide a useful framework for understanding the dynamics between various stakeholders involved in the banking system (Omware et al., 2020). This includes bank customers, managers, shareholders, and regulators. Agency theory helps explain the behavior of each of these stakeholders, as well as the potential costs and benefits associated with their decisions. For example, customers may be motivated to patronize a bank because they believe that it will offer them the best service, or because of its competitive interest rates. However, bank managers may be motivated to maximize their profits, while shareholders may be motivated to maximize their return on investment (Panwar et al., 2017).

The agency theory can also be applied to the various activities of the bank and the relationships between the various stakeholders. For instance, the bank's management may be motivated to take on more risk in order to increase their profits, while the shareholders may be motivated to reduce risk in order to maximize their returns. Bank customers may be motivated to seek out the best deals, while regulators may be motivated to ensure that the banking system is functioning properly and that customer interests are being protected (Ozili, 2018), which is related to the stability of commercial banks and their operations; hence, banks must have the right balance between risk-taking and oversight to maximize the benefit to all stakeholders.

The concept applies to the current research in the sense that managers may engage in risk-taking behaviors that may be against the wishes of shareholders whose interests are long term(Bernard, 2014) Owing to information asymmetry between owners and managers, there are numerous instances of fraudulent acts in which one person might cause harm to others because of superior information. Thus, information asymmetry may lead to the destabilization of the firm and that of the entire economy (William L. Rowe,2017). While the agency theory is not entirely incorrect, its applicability to real-world scenarios where owners and managers possess distinct objectives is limited.

Nevertheless, it should be noted that all parties involved have equal access to the available information (Zogning, 2017).

## **2.3 Empirical Review**

Previous studies have presented different findings on the effect of competition, profitability, and competitive conditions on the stability of commercial banks.

### **2.3.1 Competition and Stability of Banks**

The empirical findings regarding the correlation between competition and stability present a mixed picture. In theoretical terms, two contrasting viewpoints exist regarding how competition influences bank stability: the competition-fragility hypothesis and the competition-stability hypothesis. One strand of the empirical literature affirms the competition-fragility hypothesis for specific countries: Zimbabwe (Abel et al., 2018) and China (Tan et al., 2017) and cross-country evidence for Latin American countries (Yeyati & Micco, 2007), East Asia (Phan et al., 2019), BRICS countries (Moudud-Ul-Huq, 2020) and European countries (Bahri & Hamza, 2020).

In a study of 16 developing countries, Kabir and Worthington, (2017) found that conventional banks have a more pronounced competition fragility effect than Islamic banks. Studies have shown that increased competition among banks results in instability owing to an increased appetite for excessive risk-taking and reduced capital buffers (Mdoe, 2017). The research findings indicate that Islamic banking could present a more favorable choice for developing nations aiming to mitigate banking system instability. Islamic banks tend to exhibit lower propensity for assuming excessive risk, thereby reducing the vulnerability of the banking system and minimizing the likelihood of banking crises. Furthermore, Islamic banking can potentially provide an alternative source of finance for developing countries, as it does not involve the taking of interest.

The second strand of the literature affirms the competition-stability hypothesis. Cross-country evidence is available for emerging and developing countries (Amidu & Wolfe, 2013), sub-Saharan Africa (Akande & Kwenda, 2017), and East Asia (Beck et al., 2014). Additionally, specific country evidence is available for banks in Pakistan

(Aleemi et al., 2019) and Turkey (Yald & Bazzana, 2010). Empirical evidence supports the existence of various channels. Amidu and Wolfe, (2013) find that competition results in greater stability owing to banks' diversification motive in an attempt to retain profits. On the other hand, Beck et al., (2014) find that competition among commercial banks with adequate regulatory mechanisms has social welfare benefits. Similarly, Vives, (2018) posited that the social welfare benefits of competition are realizable only by controlling and eliminating market failures.

The third strand of the literature either supports or negates both the competition-fragility view and competition-stability views. Empirical evidence supporting both hypotheses is available for the banking markets of Gulf Cooperation Council countries (Saif-Alyousfi et al., 2020), the Mexican banking industry (Fernández & Garza-García, 2015), and banks in Sub-Saharan Africa (Dwumfour, 2017). In contrast, a study carried out in the Turkish banking sector (İskenderoğlu & Tomak, 2013) found support for neither view. There is no clear consensus in the empirical literature regarding whether competition enhances stability or fragility, which highlights the need for a study in a developing country.

Evidence suggests that competition can have both positive and negative impacts on financial stability, depending on the specifics of the market structure, nature of the competition, and other contextual factors (Zigraiova & Havranek, 2016). Thus studying the influence of competition on financial stability holds significant importance developing countries, such as Kenya, as the context and dynamics are likely to differ from those of developed countries. Such a study could provide valuable insights for policymakers on how to design policies that promote both competition and financial stability.

### **2.3.2 Profitability and Stability of Banks**

Several authors (Moudud-Ul-Huq, 2020; Ozili, 2018; Yeyati & Micco, 2007) have explored the impact of profitability on stability on commercial bank stability. From an empirical perspective, the literature on profitability's impact on bank stability is contradictory. Up to a certain point, profitability can help maintain stability, but it can



be harmful when it exceeds that point (Martyno, 2015). However, banks that are more profitable improve their financial stability. However, this statement has not been widely accepted in literature.

Some American and European studies support a negative relationship between bank profitability and stability (Pessarossi et al., 2020). Other scholars (Flamini, McDonald, & Schumacher, 2009; Tan 2016) have found that ROE does not explain the relationship between profitability and bank stability, whereas ROA is important and optimistic, indicating that bank distress will be prevented if banks maintain a higher return on assets. This is likely because the return on assets measure includes both profitability and efficiency, whereas return on equity only measures profitability.

Flamini et al.,( 2009) looked at the factors that influence bank stability in Europe, focusing on transition countries and taking profits into account. According to researchers, this variable has no significant coefficient, implying that profitability and bank distress are not linked in transition nations before the wave of EU membership. The study found that ownership structure, bank size, and capital adequacy are the main drivers of bank stability, whereas macroeconomic factors such as GDP growth and inflation are less relevant. Furthermore, the study shows that the European Union accession process has a significantly positive effect on bank stability in transition countries, indicating that the accession process has improved banking sector stability (Rakshit & Bardhan, 2022).

From an empirical point standpoint, the literature on the impact of profitability on bank stability is contradictory. Some studies suggest that higher profitability leads to a more stable financial environment, whereas others argue that lower profitability leads to a more stable financial system (Asiama & Amoah, 2019). For example, (Jayaraman et al., 2019)found that higher profitability is associated with higher levels of bank stability, while Ma et al., (2012)found that lower profitability is associated with lower levels of bank stability.

It is important to note, however, that the impact of profitability on bank stability is not a one-size-fits-all situation. Different markets and banks may experience different outcomes from each other. The relationship between profitability and stability in the banking industry can be influenced by various factors, including bank size, bank capitalization, and the characteristics of the banking sector (Alam, 2013).

The aim of this research is to investigate the connection between bank stability and profitability to gain a more precise understanding of the relationship. By utilizing a variety of analytical techniques, such as regression analysis, this study provides evidence that can be used to inform decisions regarding bank stability and profitability. Additionally, this study provides recommendations for bank managers and regulators on how to ensure the stability and profitability of banks.

### **2.3.3 Risk-Taking Behavior and Stability of Banks**

In banking literature, researchers have linked risk-taking behaviors to many different factors. Some researchers have linked risk-taking behavior to many different factors, such as individual characteristics, organizational culture, and regulatory environment (Srivastav & Hagendorff, 2016). For example, individual-level factors linked to risk-taking behavior in banking include personality traits, age, gender, and experience. Organizational culture influences risk-taking behavior in banking by influencing the norms and values of the organization. Finally, the regulatory environment has been found to influence the level of risk taken by banks, as well as the types of risks taken by imposing constraints on their activities.

Some studies have focused on efficiency and bank risk-taking behaviors (Alam, 2012), while others have focused on how market power affects risk-taking behavior (Bahri & Hamza, 2020). Other studies also focused on competition and risk-taking behaviors (Aleemi et al., 2019). However, there are very few studies on risk-taking behavior and banking stability. Perera and Ajward (2018) and Maiti and Bidinger (2014) find that banks' excessive risk-taking exacerbated the widespread underlying financial crisis in 2008. In addition, the regulatory structure was inadequate, and its execution was

insufficiently motivated by commercial banks over risk-taking behaviors, leading to instability.

According to Bahri and Hamza, (2020), the main reason for commercial banks' risk-taking behavior is their need for higher returns. Banks have been under pressure to increase their profits in recent years, which has led to a tendency for them to take greater risks in their investments and lending activities. Banks have also responded to the changing macroeconomic environment, with increased volatility and uncertainty, by taking on more risk. In addition, banks have been taking on more risk to meet regulatory requirements, such as capital adequacy and liquidity ratios, as well as to diversify their investments. Finally, banks have also responded to competition from other financial institutions by taking on more risk to achieve higher returns.

On the other hand, García-Alcober et al., (2019), in their study, concluded that higher interest rates do not compensate for increased risk-taking behavior. They find that when interest rates increase, investors become more risk-averse and seek less risky investments. This suggests that higher interest rates may not be an effective tool for encouraging risk-taking behavior. Furthermore, their results indicate that investors' risk preferences largely determine the level of risk-taking behavior.

Although more research is needed to draw firm conclusions, the existing literature suggests that risk-taking behaviors may not necessarily lead to the stability of commercial banks. Research has shown that risk-taking behavior increases the likelihood of defaulting on loans, which can lead to instability in the banking system (Agoraki et al., 2011). Furthermore, research also indicates that risk-taking behavior can contribute to excessive speculation and speculation-induced volatility, which can lead to instability in the banking system. Thus, risk-taking behavior may not necessarily lead to the stability of commercial banks.

Research on risk behavior and stability of banks can involve an analysis of the industry's regulatory environment, banks' financial statements, and banks' risk management strategies. It can entail analyzing the bank's risk appetite and risk management policies

as part of the examination. Additionally, research can include an analysis of bank liquidity, capital adequacy, and asset quality. The goal of this study is to assess banks' ability to manage risk and maintain stability. This research can help inform regulatory decisions, investors, and banks ensure they are taking appropriate risks.

#### **2.4 Summary of Literature Review**

Studies have shown that competition, profitability, and risk-taking behaviors have different effects on the stability of commercial banks in Kenya. In some cases, competition increases the stability of Kenya's commercial, whereas in other cases, competition was found to reduce the stability of Kenya's commercial banks. Competition can have both positive and negative effects on the stability of commercial banks in Kenya.

Generally, increased competition can result in enhanced efficiency within the banking sector and can create a more competitive market. This can lead to increased customer satisfaction, improved customer service, and more competitive products and services, all of which can contribute to a more stable banking system. However, increased competition can also lead to decreased profits for banks, as they must compete for customers and compete on price. This can lead to decreased capital reserves, which can in turn lead to decreased stability in the banking sector. In addition, increased competition can also lead to increased risk, as banks may take on more risk in order to remain competitive.

Similarly, some studies have found that increased profitability leads to increased stability, whereas others have found that increased profitability leads to decreased stability. Regarding risk-taking behaviors, some studies have found that increased risk-taking behavior leads to increased stability, whereas other studies have found that increased risk-taking behavior leads to decreased stability. This suggests that the specific effects of competition, profitability, and risk-taking behaviors on the stability of commercial banks in Kenya may depend on the nature of the competition, the level of profitability, and the degree of risk-taking behavior. Thus, it is important for commercial

banks in Kenya to carefully consider the potential effects of these factors on their stability before making decisions.

The task of determining the exact influence of competition, profitability, and risk-taking behavior on the stability of Kenya's commercial banks is rendered difficult due to the conflicting results obtained from these studies. Moreover, the utilization of diverse analytical techniques and variable measurements contributes to divergent outcomes, further complicating the ability to reach definitive conclusions. To bridge the existing research gap caused by conflicting findings, it is essential to conduct further studies focusing on the specific impacts of competition, profitability, and risk-taking behaviors on the stability of commercial banks in Kenya. Additional research is needed to gain a comprehensive understanding of the precise influence of competition, profitability, and risk-taking behavior on the stability of commercial banks in Kenya.

## **2.5 Research Gaps**

Research gaps can emerge from methodological weaknesses of previous studies, a comprehensive data range, conflicting findings on the same study, and omissions of relevant variables in a study (Jensen & Meckling, 1976). From the reviewed literature, Amidu and Wolfe (2013), Boot and Thakor (2000), Loukoianova, Gianni De Nicolò, and Elena, (2016) and Mdoe (2017) looked at competition and stability and failed to consider profitability and risk-taking behavior of commercial banks. Daly Anne (2017), Martyno (2015) and Tan (2016) researched on profitability and stability of commercial banks but omitted competition and risk-taking behaviors. Alam (2012), Bahri and Hamza (2020), and García-Alcober et al. (2019) investigated risk-taking behavior and stability and did not include profitability and competition. All these research produced conflicting results, allowing this study to ascertain whether the results are replicable.

While the present study is concentrated on Kenya, a poor country, the bulk of earlier studies in this sector have mostly focused on banking markets in wealthy nations. Previous research on Kenya's banking industry has mostly focused on examining the characteristics unique to each bank that affect the financial stability of commercial

banks (Kiemu et al., 2019). Previous research has assessed how credit risk affects commercial banks' financial performance, including how it affects the institutions' value (Muriithi et al., 2016) and how competition affects the risk-taking tendencies of commercial banks (Bernard, 2014). The rivalry, profitability, risk-taking tendencies, and stability of commercial banks in Kenya, however, were not examined in any of these studies.

By examining the effects of competition, profitability, risk-taking behavior, and stability on the performance of commercial banks in Kenya, this research aims to close this gap. Additionally, this analysis utilized yearly data as opposed to Kasman and Kasman's (2015) study, which used quarterly data. The research will evaluate the effects of competition, profitability, risk-taking behavior, and stability on the performance of commercial banks in Kenya using financial statement analysis methods such regression analysis. The researcher will then be able to evaluate the relative significance of these elements. Descriptive statistics will also be used in the research to evaluate the yearly performance of Kenya's commercial banks.

## **CHAPTER THREE**

### **METHODOLOGY**

#### **3.1 Introduction**

The procedures applied in this study are described in this section. It is organized into sections that include research design, theoretical framework, data collection, data processing and analysis, and operationalization and measurements of study variables.

#### **3.2 Research Design**

The researcher adopted a causal comparative research design to conduct this study. The research design was used because it determines cause and effect relationships and allows the researcher to manipulate the independent variable to observe its impact on the dependent variable (Sestak & Sestak, 2010). The study reviewed secondary unbalanced panel data from the income statements of Kenya's banking supervision annual reports and the Central Bank of Kenya.

#### **3.3 Target Population**

This study's target demographic was Kenya's authorized commercial banks. According to CBK, (2020), Forty-two licensed Kenyan commercial banks were used as the target population as of December 31, 2020. Eleven of the 42 commercial banks lacked sufficient data for this study, leading to a sample size of 31 commercial banks.

#### **3.4 Theoretical Framework**

This study was based on the competition fragility hypothesis. This theory contends that competition breeds financial instability (Boyd & De Nicoló, 2005). A competitive banking system reduces banks profitability and makes banks respond to declining profits by taking excessive risks and operating with low capital buffers. This compromises the bank's instability. This study employed Boyd and De Nicoló (2005) theoretical model to achieve its objectives.

Specifically, to achieve the objective, the baseline model was formed as follows:

$$y_{it} = f(\text{competition}_t) \dots\dots\dots (3.1)$$

Where  $y_{it}$  is the stability of a given commercial bank  $i$  at time  $t$ , *competition* is competition index prevailing in the banking sector at time  $t$ . It is important to note that profitability can be beneficial for stability. However, it may become detrimental at a high level, according to the Chatter Value Hypothesis (CVH). Therefore, profitability was added to the model to determine its impact on stability. Equation (3.1) now becomes.

$$y_{it} = f(\text{competition}_t, \text{profitability}_{it}) \dots\dots\dots (3.2)$$

Where *profitability*<sub>it</sub> is the return on investment of individual commercial bank  $i$  at time  $t$ . In addition, the theory suggests that competition and profitability influence the risk-taking behavior of a given commercial bank. By incorporating risk-taking behavior into the model, we were able to examine its impact on the stability of commercial banks. As a result, Equation (3.2) is modified as follows:

$$y_{it} = f(\text{competition}_t, \text{profitability}_{it}, \text{risk} - \text{taking behaviour}_{it}, \varepsilon_{it} \dots\dots\dots (3.3)$$

Where, *risk – taking behaviour*<sub>it</sub> is the risk which an individual bank takes at time  $t$ -to make profitable investments.

### 3.5 Model Specification

The modelling strategy relies on Generalized Methods of Moments (GMM). There is bidirectional cause-and- effect relationship between the study variables leading to causality. Changes in competition may affect profitability while profitability may in turn impact the level of competition. This complex interaction leads to simultaneity. The GMM model account for potential biases associated with simultaneity and reversed causation. Equation (3.3) is transformed into a dynamic model by introducing lag variable to capture the effects of past values on the current values. In generally, the model is expressed as follows:

$$Stab_{it} = \gamma Stab_{it-1} + \beta_1 X_{it} + \beta_2 V_{it} + \eta_i + \mu_t + \varepsilon_{it} \dots\dots\dots (3.4)$$

where  $Stab_{it}$  denotes the level of stability in the present year,  $Stab_{it-1}$  is the stability of the same bank for the previous year, and  $X_{it}$  is a matrix of all explanatory variables (competition, profitability, and risk-taking behavior).  $V_{it}$  is a matrix of control variables



encompassing bank size, GDP growth, capital size, and liquidity. The choice of the control variables is motivated by their relevance in capturing different aspects of the banking environment, macroeconomic conditions, and financial strength. By controlling for these factors, the study can isolate and better understand the specific effects of competition on the performance and behavior of commercial banks in Kenya.  $i$  represents a specific commercial bank, and time period is represented by  $t$ .  $\mu_t$  is a temporal dummy for accounting for time-specific effects,  $\eta_i$  is an unobserved bank-specific effect, and  $\varepsilon_{it}$  is an idiosyncratic error term.

Equation (3.4) is calculated using OLS since the main objective was to investigate the link between market competitiveness, profitability, risk-taking behavior, and stability of commercial banks in Kenya. OLS, however, does not consider potential endogeneity in the regressors or unobservable bank-specific effects. The GMM estimators of Arellano and Bover (1995), Arellano and Bond (1991), and Blundell and Bond (1998) are far superior to the other panel data estimators for models with dynamic panel specifications. The GMM panel estimator employs appropriate lags of the regressors as instruments and adjusts for both temporal and bank-specific effects to address the endogeneity issue. Equation (3.4) can now be written concisely as in Equation 3.5, where  $y_{it}$  is the dependent variable and  $X_{it}$  is a set of regressors that include the explanatory and other control variables:

$$y_{it} - y_{it-1} = (\gamma - 1)y_{it-1} + \beta_1 X_{it} + \eta_i + \mu_t + \varepsilon_{it} \dots \dots \dots (3.5)$$

Alternatively, Eq (3.5) can be rewritten as follows:

$$y_{it} = \gamma y_{it-1} + \beta_1 X_{it} + \eta_i + \mu_t + \varepsilon_{it} \dots \dots \dots (3.6)$$

The existence of bank-specific effects  $\eta_i$  causes bias in the fixed effects (within-group) estimators and is inconsistent, because it is correlated with the lagged dependent variable  $y_{it-1}$ . Arellano and Bond, (1991) proposed the use of the first difference equation to remove country-specific effects:

$$y_{it} - y_{it-1} = \gamma(y_{it-1} - y_{it-2}) + \beta_1(X_{it} - X_{it-1}) + (\mu_t - \mu_{t-1}) + (\varepsilon_{it} + \varepsilon_{it-1}) \dots \dots \dots (3.7)$$

Equation (3.7) was regressed to achieve the study objective. However, this introduced a new endogeneity bias. First, the new error term ( $\varepsilon_{it} + \varepsilon_{it-1}$ ) correlates with the lagged dependent variable ( $y_{it-1} - y_{it-2}$ ). Second, there exists a correlation between the independent variables and the lagged error term  $\varepsilon_{it-1}$ . Under two-moment circumstances, the differenced GMM estimators use lagged values (two or more) of the regressors as instruments: (i) the idiosyncratic error term  $\varepsilon_{it}$  is serially uncorrelated, and (ii) the exogenous regressors  $X_{it}$  are weak. Blundell and Bond (1998) argue that as the data become more persistent, the GMM estimator suffers from weak instrumentation.

The system GMM estimator was chosen over difference GM. This is because system GMM controls for unobserved heterogeneity, handling endogeneity and simultaneity issues, and providing efficient instrumental variable estimation. By incorporating lagged variables, System GMM enables a comprehensive analysis of the dynamic relationships among competition, profitability, risk-taking behavior, and stability in the banking sector (Areliano & Bover, 1995; Blundell & Bond, 1998). The lagged differences in the regressors serve as the instruments for the level equations. A two-step GMM was used in this study because it is more efficient.

### **3.6 Data Collection Instruments**

For the years 2001 to 2020, secondary data were utilized in this investigation. The financial accounts of individual banks that were made publicly accessible served as the source of the data used in this research. Financial statements are widely available since the regulator requires banks to publish. In addition, macroeconomic data were derived from the Kenya Bureau of Statistics database.

### **3.7 Data Collection Procedure**

Data were extracted from published financial statements for individual banks. These data are available from each bank's website. Data were collected for the period 2005-2020 from forty-two (42) commercial banks in Kenya.

### 3.8 Data Processing and Analysis

Two fundamental specification tests were used to determine the validity of the GMM estimator. The first step in assessing the overall validity of the instruments was conducting the Hansen test for over-identification constraints, and the second step was the Arellano-Bond test for serial correlation. Other relevant statistical diagnostic tests were also performed. To avoid spurious results, the Fisher-type test was used to check the data stationarity condition. The Breusch-Pagan LM test for heteroscedasticity was used to ensure that the variances of the error terms were constant. This aids in preventing incorrect inferences from the erroneous trace statistics. To ensure that the data were normally distributed and to enhance consistency on the obtained population parameter, the Jarque-Bera test for normality was used. The proposed model was estimated using STATA because it has excellent programs for panel data analysis.

### 3.9 Operationalization and Measurement of Study Variables

In this research, bank stability was the dependent variable, and two z-score indices were used to gauge the stability of commercial banks. First, the following is how the bank stability Z-score is created:

$$z - score(Bstab)_{it} = \frac{ROA_{it} + (E/TA)_{it}}{\partial(ROA_{it})}$$

Bstab stands for the bank's stability Z-score, ROA stands for the bank's return on assets, E/TA stands for the bank's equity as a percentage of total assets, and  $\partial(ROA_{it})$  stands for the return on assets' standard deviation. When profitability and capitalization levels are greater, the bank stability indicator rises; when profits are unstable and are indicated by a larger standard deviation of return on assets, it falls. The second z-score index was used for financial risk, computed as follows:

$$Z - score(FRisk)_{it} = \left[ \frac{\left( \frac{DEP}{TA} \right)_{it} - \left( \frac{E}{TA} \right)_{it}}{\sigma \left( \frac{DEP}{TA} \right)_{it}} \right]$$

The deposit-to-total assets (DEP/TA) ratio and the equity-to-total assets (E/TA) ratio were combined to create the Z-score, more precisely the FRISK Z-score. The deposit-to-assets (DEP/TA) ratio's standard deviation was then multiplied by this combined ratio. Analysis of this variable in the context of bank stability is essential, as it reflects the ability of retail banks to utilize customer deposits for their financial activities. This consideration is supported by recent literature (Adusei, 2015).

Profitability was considered an exogenous variable in the study, serving as a measure of the performance level for each bank. The indicator of bank profitability is ROA. The calculation involves dividing the net income by the total

$$ROA_{it} = \frac{Netincome_{it}}{TotalAssets_{it}}$$

assets, resulting in the computation of the ratio.

Competition was an exogenous variable in this study. The Herfindahl-Hirschman index (HHI) and Lerner index were used to calculate this variable's value. The level of market concentration was assessed using the HHI. Market concentration is high under a monopoly, hence high concentration also indicates less competition. The HHI index is low under ideal competition, suggesting strong competition. The HHI's calculation is

$$HHI = \sum_{i=1}^n s_i^2$$

where  $s_i$  is the market share of bank  $i$  in the banking segment's total assets. HHI=1 in an industry with an exclusive producer. Within a sector with  $n$  banks, the HHI can have a maximum value of 1 and a minimum value of  $1/n$ . The markup of price above marginal cost is represented by the Lerner index, which serves as a direct indicator of the level of market power. It was the only competition index determined at the bank level, as follows:

$$lerner_{it} = \frac{price_{it} - mc_{it}}{price_{it}}$$

where  $it$  is the marginal cost of generating an extra output unit, and is  $price$  the price of all assets.

Risk-taking behavior was an exogenous variable in this study. Commercial banks' risk-taking behavior encompasses their motivations, decision-making, and risk-based operational execution. Commercial banks may be exposed to different types of risks in the process of their risk-taking behaviors. Default, asset, market, capital, and liquidity risks. The last two are determined by a bank's capital and liquidity buffers, which suggest risk mitigation, and are thus closer to soundness in their meaning. The ratio of gross NPAs to gross advances was used to calculate default risk. A higher NPL ratio shows that a bigger percentage of a bank's entire portfolio is made up of troubled loans, which raises the credit risk of the institution. Asset risk was calculated using the ratio of loan loss provisions to total assets, while market risk was determined using the ratio of interbank borrowings to total borrowings.

The control variables in this study were bank size, GDP growth, capital size, and liquidity. The size of a bank is a crucial factor in determining the scale of operations that will enable it to better manage risk and prevent insolvency. The total assets of bank  $i$  measure in period  $t$ . GDP growth is used to track the state of the institutional structure, macroeconomic stability, and general economic progress, all of which have the potential to affect how well a nation's banking system performs. The real GDP's yearly growth rate was used to calculate this indicator. The increase in the value of the products and services produced by an economy over the course of a year is measured by the annual growth rate of real GDP, which is adjusted for inflation. Financial institutions' safety and soundness are ensured by capital, which serves as a loss-absorbing cushion.

The percentage ratio of equity to total assets was used to calculate capital size. The equity to total assets ratio calculates how much equity capital a business has in comparison to all of its assets. Equity capital is money that is invested in a company by owners or shareholders, and is used to finance operations and pay for liabilities. This ratio is an important measure of financial stability, and is monitored by regulators to ensure the safety and soundness of financial institutions. Finally, liquidity is vital for a commercial bank to ensure continual day-to-day operations and address unforeseeable problems. A summary of the measurements of the study variables is presented in Table 3.1.

**Table 3.1: Summary of Operationalization and Measurements of Study Variables**

Variable	Type	Measurement
Stability	Endogenous	Z-score
Competition	exogenous	Lerner index Hirschman Herfindahl index (HHI)
profitability	exogenous	Percentage normalized annual returns on assets (ROA)
Risk-taking behavior:	exogenous	NPL to total loans ratio
Default risk		Ratio of loan loss provisions to total assets
Asset risk, Market risk,		Ratio of interbank borrowings to total borrowings.
Liquidity risk		Total loan to Total Deposits
Bank size	Control variable	The log of total assets of bank i in period t
GDP Growth	Control variable	Annual growth rate of real GDP
Capital size	Control variable	The ratio of equity to total assets
Liquidity	Control variable	The ratio of loans to assets

## CHAPTER FOUR

### EMPIRICAL RESULTS AND DISCUSSION

#### 4.1 Introduction

This section provides the results of the empirical estimation and discussion. The analysis is performed in a manner that reflects the themes of the objectives under study and the proposed methodology.

#### 4.2 Descriptive Statistics

The stability and bank-specific factors affecting commercial banks in Kenya are presented in Table 4.1, demonstrating their descriptive statistics. From the table, the average stability as measured by Zscorestab for all commercial banks was about 3.1 with a volatility of about 1.1 across the listed banks. The minimum average stability was approximately -0.1 and maximum was approximately 8.12. A negative score implies that some banks have a high probability of insolvency. Such banks must have reported a negative ROA and a low equity-to-asset ratio.

The average stability as measured by Zscorefrisk in all commercial banks was about 6.1 with a volatility of about 1.9 across the listed banks. The minimum average stability was about -1.4 and the maximum was approximately 11.1. The small standard deviations for all dependent and control variables indicate that the data values were evenly distributed around the mean value. This often means that these factors did not change significantly over time.

**Table 4.1: Summary Statistics of the Key Study Variables**

	N	Mean	Std. Dev.	min	Median	max
zscorestab	352.000	3.164	1.141	-0.173	3.315	8.121
zscorefrisk	563.000	6.126	1.910	-1.433	6.301	11.146
Lerner	563.000	0.168	0.031	0.118	0.168	0.215
HHI	563.000	0.077	0.013	0.062	0.076	0.103
roa	563.000	0.009	0.026	-0.177	0.005	0.100
roe	563.000	0.135	0.255	-2.877	0.176	0.740
LTD	563.000	0.809	0.539	0.236	0.784	11.190
NPL	563.000	0.152	0.162	0.000	0.089	0.936
Banksiz	563.000	10.027	1.383	7.085	9.848	12.921
capitalsize	563.000	0.149	0.060	-0.474	0.142	0.529
gdp	563.000	4.681	2.434	-3.000	5.370	8.410
sd 4	539.000	0.009	0.017	0.000	0.003	0.165

From Table 4.1, Zscorestab and Zscorefrisk are measures of stability, which is the dependent variable. Lerner and HHI are measures of competition and are explanatory variables. Roa and roe are proxies of getting profitability, another explanatory variable. LTD and NPL are liquidity risk and credit risk measures, respectively. Bank size, capital size, and GDP were used as control variables. Sd\_4 indicates the window size used to calculate the rolling standard deviation of the specified statistics.

To gain further insight, this study explored the temporal properties of key variables. As can be observed from Figure 4.1, bank stability increased from 2005 to 2016 and declined over the period 2016-2020. The growing stability observed in these banks can be attributed to the enhanced regulatory measures implemented in the countries where they operate, which oversee the banking sector, which has increased their stability and reduced the chances of collapse. Additionally, the introduction of Basel III regulations in 2010 also contributed to the increased stability of banks by setting higher capital and liquidity requirements. Moreover, the global economic crisis of 2008-2009 has increased the awareness of the importance of strong banking regulations and the need for banks to be more resilient to avoid systemic risk. The improved capital and liquidity requirements have also been supported by a series of other reforms and measures, such as stress tests, macro prudential regulation, and resolution regimes. All of these measures contributed to increased bank stability. This could be attributed to declining



profitability resulting from attempts to tame exceptional bank profitability among commercial banks. This means that reducing bank profitability made commercial banks less stable. The downward trend can also be characterized by the increasing prevalence of loans that are not performing in commercial banks, occurrences of bank runs among these banks, and a notable rise in foreign liabilities held by commercial banks in Kenya.

From Figure 4.1, during 2000–2007, the Lerner index increased, signaling a slight decrease in competition. This episode was followed by the unstable movement of the Lerner index, leading to instability in competition among commercial banks during 2008–2013. From 2014 to 2020, the value of the Lerner index showed a declining trend, which indicates an increase in competitive conditions, thus reducing market power among commercial banks. Changes in marginal cost, particularly shifts in the price of capital and finance as inputs, are blamed for the development of the Lerner index. Market concentration, as measured by the HHI, declined over the period 2000–2013. From 2014 to 2020, the market concentration of Kenyan commercial banks increased.

Regarding profitability, Figure 4.1 shows that ROA remained generally consistent over time, with a decrease from 1.03% in 2016 to 0.98% in 2018. This decrease was mainly due to the implementation of interest rate restrictions in 2016, which reduced commercial banks' profitability. However, ROA for commercial banks has been steadily increasing since 2018, reaching 1.14% in 2020. The improvement in profitability can be attributed mainly to the increase in net interest margins, which is the result of rising interest rates. The ROE grew steadily until 2011, and then began to decline until 2015. Due to changes in regulatory minimum capital requirements, a constant growth in equity is to blame for this drop.

Kenyan banks were forced to raise their regulatory capital requirements to KES 500 million in 2010, KES 700 million in 2011, and KES 1,000 million in 2012. As shown in Figure 4.1, liquidity risk decreased for the years 2001–2010, increased for the period 2011–2015 and showed a decreasing trend from 2015 to 2020. As a result, banks had to raise more equity, which reduced their ROE. The study also revealed that liquidity risk decreased from 2001 to 2010, increased from 2011 to 2015, and then decreased again

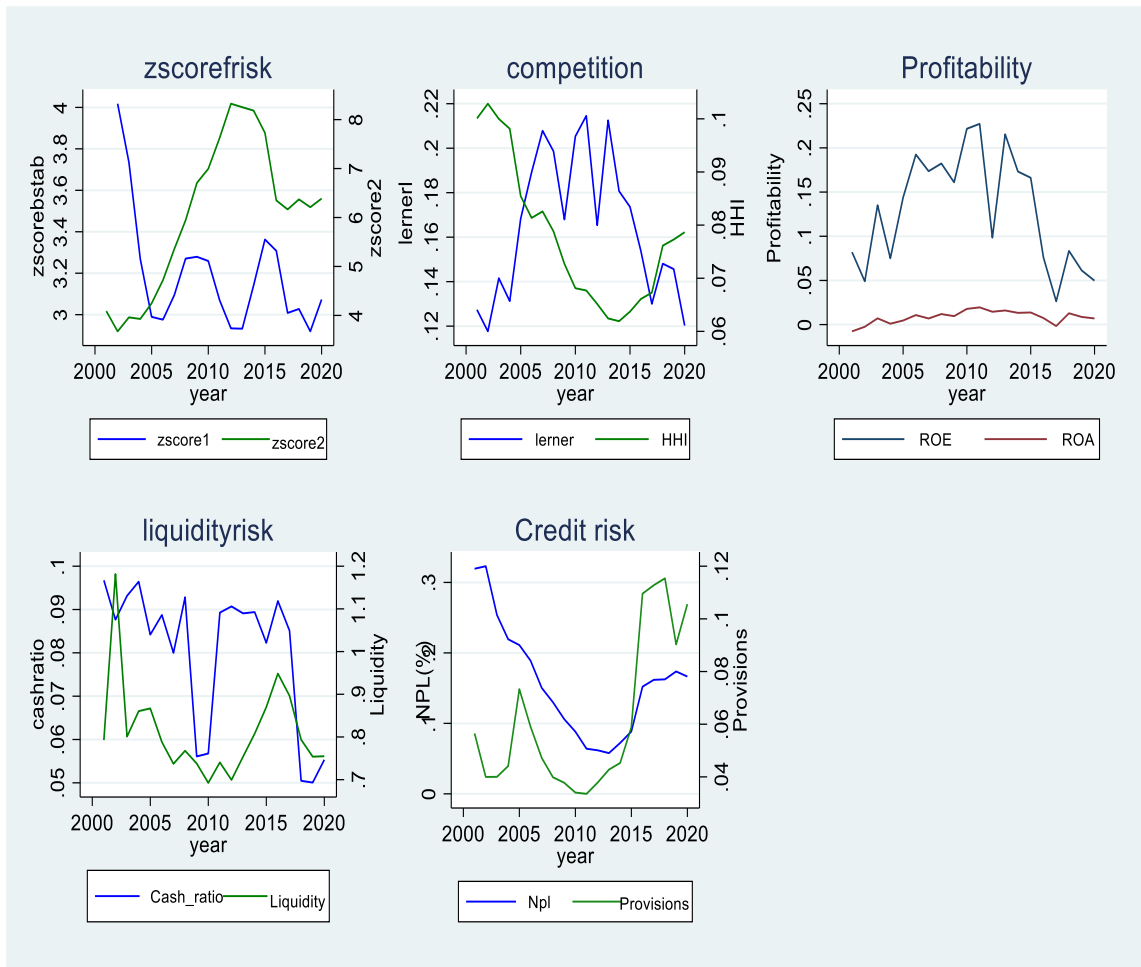
from 2015 to 2020. The increase in liquidity risk from 2011 to 2015 could be due to the tightening of monetary policy by the Central Bank of Kenya, which led to a decrease in liquidity in the banking sector. However, the liquidity risk decreased again from 2015 to 2020, indicating that the banking sector was able to manage its liquidity better in recent years.

The decreased liquidity could be ascribed to the introduction of new regulations, such as the Basel III Accord, which imposes stricter standards on liquidity risk management and the banking industry's increased emphasis on liquidity risk management. The increase in liquidity risk could be attributed to the increasing instability in the global economy as well as the large number of financial crises that occurred in the period 2011-2015. Additionally, the increasing complexity of financial instruments and use of leverage have further contributed to the increase in liquidity risk. Overall, the liquidity risk management framework has made strides to ensure that banks have sufficient liquidity buffers to withstand economic shocks and financial crises. The increased focus on liquidity risk management has enabled banks to manage their liquidity risk better and prevent liquidity crises. Consequently, the banking sector has seen a decrease in liquidity risk over the last decade.

Credit risk, as indicated by NPLs and provisions decreased for the years 2001-2010. There was a sharp growth in loans in 2010 attributed to the macroeconomic environment, which led to a decrease in NPLs and provisions. The increase in credit quality was also aided by tighter lending standards, stricter loan collection policies, and implementation of risk-based lending models. Furthermore, the Basel III framework and other regulations introduced after the financial crisis helped reduce banks' vulnerability to credit risk. All these factors contributed to the decrease in credit risk, as indicated by NPLs and provisions over the years 2001-2010. Since 2011, NPLs have increased, resulting in higher credit risks.

This increase can be attributed to the collapse of the credit system following the 2008 Financial Crisis. Banks and other lenders have tightened their lending practices, resulting in fewer loans being offered. This in turn increases the risk of borrowers

defaulting on their loans, which led to an increase in non-performing loans. Additionally, due to increased unemployment, borrowers were increasingly unable to meet their repayment obligations, which further contributed to the surge in NPLs. Furthermore, the low-interest-rate environment that followed the crisis also contributed to the rise in NPLs, as it made it easier for borrowers to take out more debt than they could afford to repay.



**Figure 4.1: Time plots of key variables**

### 4.3 Stationarity Test

A dynamic panel estimation approach was utilized in the research, assuming that the variables employed in the analysis were stationary. The stationarity assumption was rigorously tested for all the variables included in the study. To ensure the robustness of

the conclusions drawn, the null hypothesis was investigated using an ADF Fisher chi-square test. Table 4.2 presents the findings of these tests in summary form.

**Table 4. 2: Panel Unit Root Test**

Variable	ADF Fisher Chi-Square Test		Status
	In level I(0)	First difference I(1)	
Zscorebstab	89.47		I(0)
Zscorefrisk	15.66	284.31	I(1)
Lerner	201.13		I(0)
HHI	11.61	266.65	I(1)
ROA	99.93		I(0)
ROE	109.81		I(0)
NPL	139.47		I(0)
provisions	33.54	243.86	I(1)
liquidity	210.41		I(0)
Cash ratio	140.51		I(0)
Gdp	94.58		I(0)
Capitalsize	169.83		I(0)
Banksized	29.21	227.42	I(1)

The variables included in the research are shown in Table 4.2, and the results of the ADF unit root test are shown in the first row. The ADF test assumes that the variable does not contain a unit root. This means that the variable is stationary if the null hypothesis is rejected. Both the level and the initial difference of each variable are tested, and the findings are presented. The overall findings suggest that some variables exhibited stationarity at the level, while others displayed stationarity at the first difference. Hence the variables stationary at first difference were regressed in their differenced form. This made it possible for the research to accurately estimate models using the generalized method of moments (GMM), assuring that the findings were legitimate.

#### **4.4 Correlation Analysis**

Tests of correlation were run to investigate the connection between external factors and the stability of Kenya's commercial banks. Table 4.3 contains the findings of the correlation test. There is a chance of obtaining inaccurate estimates if the regressors are highly correlated, because multicollinearity causes the coefficient of standard errors to increase, which affects the predictors. The coefficient of correlation must be less than 0.8 to confirm the absence of multicollinearity. Table 4.3 shows that at the 5% significance level. There was no multicollinearity since all of the research variables' coefficients were less than 0.8%.

**Table 4. 3: Correlation Matrix**

Correlation Matrix													
Variable	zscorestab	zscorefrisk	Lerner	HHI	ROA	ROE	Npl	Provisions	Liquidity	Cash ratio	Bank size	Capital size	gdp
<b>zscorestab</b>	1												
<b>zscorefrisk</b>	0.00253	1											
<b>Lerner</b>	-0.0292	0.216***	1										
<b>HHI</b>	0.0580	-0.691***	0.316***	1									
<b>ROA</b>	-0.00962	0.497***	0.686***	0.517***	1								
<b>ROE</b>	0.00340	0.156**	0.925***	-0.190**	0.703***	1							
<b>Npl</b>	0.0445	-0.705***	0.571***	0.854***	0.744***	0.486***	1						
<b>Provisions</b>	-0.0328	-0.113	0.683***	-0.0203	0.513***	0.776***	0.432***	1					
<b>Liquidity</b>	0.0522	-0.202***	0.411***	0.0315	0.558***	0.393***	0.389***	0.520***	1				
<b>Cash ratio</b>	0.0406	-0.0288	0.279***	0.00926	-0.0487	0.254***	-0.0604	-0.362***	0.390***	1			
<b>Banksize</b>	-0.138*	0.317***	0.227***	0.339***	0.0687	0.288***	-0.179**	0.373***	0.0140	0.312***	1		
<b>capitalsize</b>	0.0687	-0.518***	-0.00821	0.0368	-0.0471	-0.00551	0.0682	0.0329	0.0458	-0.0323	-0.127*	1	
<b>gdp</b>	0.00769	0.0345	0.430***	0.196***	0.216***	0.345***	-0.156**	-0.196***	0.100	0.152*	0.155**	0.0198	1

"\* p<0.05    \*\* p<0.01    \*\*\* p<0.001"

The absence of multicollinearity was ruled out using the variance inflation factor. The value of the VIF should be less than ten, and the Tolerance Inflation Factor (1/VIF) should be greater than 0.1 to confirm the absence of multicollinearity. The VIF results are presented in Table 4.4.

**Table 4.4: Variance Inflation Factor**

	VIF	1/VIF
frisk	4.151	.241
HHI	3.438	.291
BS	3.342	.299
Prov	2.527	.396
lerner	2.179	.459
CS	2.108	.474
Liq	1.951	.513
Npl	1.752	.571
CR	1.663	.601
Mean VIF	2.568	.

Table 4.5 shows that all variables' VIF values are less than 10, meaning there is no multicollinearity problem. The TIF value is more significant than 0.1 for all the variables, indicating that the model does not suffer from multicollinearity problems.

#### **4.5. Estimation Results and Discussion**

The study result table presented the Sargan test and Hansen J test to assess the over-identification of constrains in the instrument selection. The null hypothesis for both tests was that the instruments are exogenous. If the p-value exceeded 0.05, the hypothesis was not rejected, thus justifying the instrument selection. The study included both AR (1) and AR (2) to check for autocorrelation in levels, with AR (2) being of particular interest due to detecting autocorrelation. This check was conducted to determine if the Arrelano and Bond orthogonality requirements were met. The null hypothesis for the autocorrelation test was "No autocorrelation," and a p-value greater than 0.05 indicated that the hypothesis was not rejected. In both estimations, the analysis had p-values

greater than 5%, confirming that the Arrelano and Bond orthogonality requirements were satisfied.



**Table 4.5: Two-step system GMM estimation results (dependent variable: zscorebstab, zscorefrisk)**

VAR	(1) Bstab	(2) Frisk	(3) Bstab	(4) Frisk	(5) Bstab	(6) Frisk
L.Bstab	0.656*** (0.097)		0.676*** (0.114)		0.674*** (0.164)	
L.Bstab		0.543*** (0.24)		0.539*** (0.196)	0.539***	0.515*** (0.092)
Lerner	-2.446* (0.337)	0.797 (2.063)			-1.728** (0.236)	2.161 (2.494)
HHI			-2.311** (0.392)	-7.991** (0.042)		
ROA	19.895** (10.036)	12.725** (0.365)	15.912** (0.463)	4.117 (11.218)		
ROE					0.651 (0.946)	1.230 (1.416)
Npl	2.255 (1.390)	-19.947*** (5.212)	-0.957 (3.237)	15.796** * (3.890)		
Provisions					-2.804 (2.346)	-17.856*** (4.938)
Banksize	0.352* (0.181)	0.578 (0.406)	0.259 (0.222)	0.465 (0.371)	0.296* (0.161)	0.847** (0.332)
capitalsize	2.689* (1.503)	-15.397*** (5.358)	2.804** (1.341)	19.663** * (4.823)	2.679* (1.462)	-9.090** (3.715)
GDP			-0.008 (0.026)	-0.019 (0.024)	-0.012 (0.026)	-0.020 (0.024)
Constant	-3.767* (2.169)	5.112* (2.882)	-2.911 (3.408)	12.211** * (2.960)	-2.516 (2.086)	-2.764 (3.372)
Observations	219	219	219	219	219	219
Number of banks	31	31	31	31	31	31
AR(1)	0.020	0.345	0.026	0.910	0.047	0.065
AR(2)	0.265	0.835	0.234	0.908	0.452	0.984
Hansen	0.529	0.332	0.592	0.496	0.394	0.200
Sargan	0.363	0.006	0.396	0.011	0.489	0.009
No.of instrument	22.000	22.000	22.000	22.000	22.000	22.000

Standard errors in parentheses \*\*\* p<0.01, \*\* p<0.05, \* p<0.1

The results of the estimation indicate a significant coefficient for the lagged dependent variables in the models. As shown in Table 4.5, a percentage change in Zscorestab and Zscorefrisk at lag one was associated with a positive 0.6% and 0.5% increase in the stability of commercial banks in Kenya at the 1% significance level, respectively. Hence, the bank's stability in the previous years and the stability of the current years exhibited a positive relationship. These results suggest that at ceteris paribus, the stability of Kenya's commercial banks now is highly reliant on stability in the past.

Profitability, as measured by ROA, was found to be positive and significant in relation to the stability of Kenyan commercial banks resulting in the null hypothesis of the research being rejected, at a 5% significance level, there was a statistically positive significant increase in the stability of commercial banks by 20.387% due to a percentage increase in profit. The results implied that banks that were more profitable had a lower affinity for risk-taking and thus more stable. The results supported the findings that when the profitability of a bank increases, its franchise value increases, reducing its risk-taking appetite, thus increasing stability (Tan & Anchor, 2016). The results obtained from ROE, another measure of profitability, were insignificant; thus, ROA was considered a better measure of profitability.

Commercial bank stability was shown to be strongly and adversely correlated with competition, as evaluated by the HHI. This empirical result confirms the "competition-stability" theory, which claims that bank competition improves banking industry stability (Adhamovna, 2014). The negative and significant HHI coefficients in both studies suggest that a rise in the HHI results in a fall in bank stability. However, because an increase in the HHI implies a reduction in competitiveness, the estimation results suggest that a reduction in competition lowers commercial bank stability. These findings support the risk-shifting paradigm that entails the transfer of risk from one person to another (Boyd & De Nicoló, 2005). The results obtained from the Lerner Index, another measure of competition, were insignificant indicating that Lerner Index may not be a strong indicator of market power or the degree of competitiveness in this study. This implied that the data conformed to the pattern predicted by the test hypothesis.

It was shown that the risk-taking behavior of commercial banks, as revealed by NPLs and provisions for loan losses, had a substantial negative association with their stability. This result is consistent with prior research, which contends that more risk-taking is linked to less stability. This is because banks that take more risks are more likely to suffer from unexpected losses, which can lead to a decrease in their capital and liquidity levels and, in turn, a higher risk of failure (Banking 2021 Pakistan). An essential consideration is how stability and risk-taking interact for regulators to consider when formulating policies, as it can help inform decisions about how much risk should be allowed in the banking system. This shows that while the industry's stability may not have been jeopardized in the immediate term by NPL impulses, the long-term effects could be disastrous (Atoi, 2019).

As a result, banks' regulatory authorities should concentrate on relevant regulatory tools, such as important drivers of NPLs, with the goal of employing these tools to maintain the NPL trend on the intended path, especially over time .In Kenya, there is a statistically significant inverse association between nonperforming loans and commercial bank stability and an increase in NPLs could reduce bank performance because the bank forfeits the principal loan amount and the corresponding interest, necessitating an increase in provision for NPLs, which also reduces the bank's assets, limiting its investment and thus income-generating potential (Asiama & Amoah, 2019). These findings are consistent with prior findings that the failure of risk management in commercial banks leads to bankruptcy (Tan, 2016) .

For bank-specific factors, the study finds the coefficients of the capital base to be positive and significant. This implies that, *ceteris paribus*, a percentage change in the capital base was linked to an improvement in commercial banks' stability. This finding suggests that the stability of commercial banks increases as their capital base increases. The study shows that additional capital requirements improve commercial banks stability by reducing their risk of insolvency. This indicates that banks with greater capital requirements are more likely to withstand financial turmoil and are less susceptible to risk (Saif-Alyousfi et al., 2020). The research also finds that increased capital requirements improve the profitability, liquidity, and profitability of commercial

banks' loan portfolios. Thus, the study concludes that increasing capital requirements helps improve the stability of commercial banks by reducing their risk of insolvency and improving their performance.

These findings are consistent with previous studies' findings that as commercial banks' capital base increases, banks' moral hazard is reduced by discouraging banks from taking on excessively risky loan portfolios, thus enhancing their stability (Karimi et al., 2017). Therefore, banks with higher capital levels are more likely to be dependable. Interestingly, a bank's size as determined by the log of its total assets—had a significant negative impact on its stability. This suggests that smaller banks are more stable than bigger ones. This suggests that bigger institutions, which are often thought of as being more stable, were less stable than smaller banks. This could be because bigger banks often have more elaborate operations and complex products, which makes them more vulnerable to unanticipated risk (Rajan, 2006).

Furthermore, bigger banks often have greater exposure to the world economy, which could affect their stability. Finally, larger banks may have more difficulty adjusting their operations in response to changing market conditions, which could lead to increased instability. This backs up the "too big to fail" theory, which claims that there is a negative correlation between bank size and stability because larger banks are guaranteed by the government in the event that they go bankrupt, increasing their risk-taking incentives (Nelly et al., 2019; Odundo, 2019). Similar outcomes have been found by Obamuyi (2013) and Javaid et al., (2011).

## CHAPTER FIVE

### SUMMARY, CONCLUSION AND RECOMMENDATIONS

#### **5.1 Introduction**

This chapter presents a summary of the key findings, and the conclusions and recommendations based on the study findings. This chapter also presents the contribution to knowledge and areas for further research.

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

This study found that the stability of commercial banks in Kenya is heavily dependent on their previous stability. To maintain stability, banks must ensure that their past financial performance was strong and that their risk management strategies were well-executed. Additionally, banks must ensure sufficient liquidity to support future operations and regularly audit their financial statements while adhering to applicable regulatory requirements.

Increased competition and reduced market concentration lead to a more stable banking sector. Competition forces banks to become more efficient, leading to lower costs and competitive prices. Reduced market concentration reduces the risk of a single bank dominating the market, preventing the risk of bank failure that can lead to financial crises. Banks that manage their risks better are more likely to offer competitive products and maintain a stable banking sector.

While increased capital adequacy helps protect firms from insolvency, it is important to consider its potential impact on competition and consumer choice. The regulatory environment must ensure that competition is not stifled during the process. Commercial banks in Kenya must balance profitability and capital adequacy to ensure stability. Banks that take on more risk become unstable, as measured by an increase in Npls and loan loss provisions, leading to a decrease in profitability and solvency. Banks need to be mindful of the risks associated with risk-taking and adopt a risk-averse approach to ensure that their risk-taking does not lead to instability.

### **5.3 Conclusion**

Increased competition in the banking sector results in a more stable industry by reducing the risk of excessive debt, encouraging better financial management, and promoting better customer services and lower costs. Higher levels of capital, liquidity, efficiency, and superior management techniques are often seen in more profitable banks, all of which support their stability.

The study's findings support the idea that risk-taking behavior is a significant factor in bank stability, and banks should take measures to limit their risk exposure, such as implementing better risk-management procedures, increasing capital adequacy requirements, and increasing oversight of risk-taking activities. The adoption of risk-based prudential regulation under Basel III is essential to ensure that financial institutions are adequately capitalized, conduct their operations safely, and do not take excessive risks, thereby protecting the financial system from systemic risks.

The continued adoption of risk-based prudential regulation within the provision of Basel III is appropriate and provides an effective tool for regulators to ensure that financial institutions are adequately capitalized and managed safely. The elevated capital and liquidity requirements under Basel III enable financial institutions to remain solvent during market stress, while the risk management standards help identify, measure, monitor, and manage risks taken by financial institutions. However, the implementation of risk-based prudential regulation should be enhanced and monitored to ensure that its intended objectives are achieved.

### **5.4 Policy Recommendations**

The study emphasizes the importance of fostering competition in the banking sector through various policies. These policies include promoting financial literacy, ensuring fair practices, eliminating bank moratoriums, and incentivizing banks to lend to small and medium-sized enterprises (SMEs). Additionally, policymakers should regulate the size and interconnectedness of banks and introduce competition policies to prevent excessive concentration. It is also noted that more profitable banks exhibit greater stability, higher levels of capital and liquidity, and better management practices.

Therefore, regulators should impose stricter regulations on smaller banks to mitigate their risk-taking behavior and maintain stability. Policymakers should provide incentives for banks to pursue profitable and less risky strategies.

In conclusion, the study recommends policymakers to focus on enhancing competition in the banking sector, regulate risk-taking behavior, and implement risk-based prudential regulations. Continuous monitoring of the banking sector is crucial, along with effective implementation of these policies to prevent financial crises, mitigate systemic risks, and ensure the overall stability of the market.

#### **5.4 Areas for further studies**

The study has contributed to academic discourse on the need to identify the optimal number and size of banks in an economy to guarantee the sector's stability. However, this study fails to provide a mechanism for determining the optimal bank concentration level. Further studies may be carried out to identify the optimal level of bank concentration, taking into consideration various elements such as the size of the economy, the nature of the banking sector and the market's accessibility to capital, to determine the optimal number and sizes of banks in an economy that would result in appropriate levels of competition. Different countries have different economic structures and population dynamics, which need to be considered when determining the optimal number of banks in the economy. Additionally, further studies may be appropriate for evaluating the micro- and macro-economic determinants of bank stability in developing countries.

Additionally, further studies may be needed to assess how bank mergers and acquisitions affect the economy as a whole and its effect on competition, credit availability, and other economic indicators. Additionally, the organization of the banking industry, should be considered. More banks may be beneficial if the sector is highly concentrated, as in the case of oligopolistic banking. This may allow for greater competition and a more efficient pricing of financial products. Finally, the regulatory environment should be considered. Different countries have different regulatory regimes, which may affect the optimal number of banks. For example, countries with a

more restrictive regulatory environment may be better served by fewer banks, which may reduce the risk of systemic failure.



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## APPENDICES

### Appendix 1: List of Commercial Banks in Kenya

1. UBA Kenya Bank Ltd
2. The Co-operative Bank
3. Suntra Investment Bank Ltd
4. Sterling Investment Bank
5. Standard Investment Bank
6. Standard Chartered
7. Prime Bank
8. Paramount Bank
9. Oriental Commercial Bank Ltd.
10. NIC Bank
11. ABC Bank
12. National Bank
13. K-Rep Bank
14. Kenya Post Office Savings Bank
15. KCB Bank
16. Investments & Mortgages Bank Limited – I&M Bank
17. Imperial Bank Limited
18. Housing Finance
19. Guardian Bank Ltd.
20. Giro Commercial Bank Ltd
21. Fina Bank
22. Fidelity Bank
23. Faida Investment Bank – FIB
24. Equity Bank
25. Equatorial Investment Bank
26. Equatorial Commercial Bank Limited
27. Dyer & Blair Investment Bank
28. Dubai Bank Kenya Ltd
29. Dry Associates Limited
30. Development Bank of Kenya Ltd
31. Co-operative Bank
32. Consolidated Bank

33. Commercial Bank of Africa
34. Citibank N A
35. Chase Bank
36. CFC Stanbic Bank Limited
37. Central Bank of Kenya
38. Bank of Baroda (Kenya) Ltd.
39. Bank of Africa Kenya Ltd
40. Afrika Investment Bank
41. African Development Bank Group
42. African Banking Corporation