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Financial Risks and Financial Performance of Commercial Banks in Kenya

[*1]Jones Mwania Richard & [2]Dr. Mark Suva

[1]Master's Student, Kenyatta University

[2]Lecturer, Department of accounting and finance, Kenyatta University

***E-mail of corresponding author: jonnesmwania@gmail.com**

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Abstract

Due to their erratic financial performance and failure to honour shareholder promises, the Kenyan central bank has formally placed a few commercial banks under receivership. Although commercial banks constantly use thorough risk management procedures, the banking industry nonetheless suffers losses. This results from the banking industry's exposure to risks related to liquidity, credit, interest rates, and foreign exchange rates. The purpose of this research was, thus, to assess the impact of credit, interest rate, and foreign currency rate risks on the return on equity of Kenyan commercial banks. The research study examined how financial risks affect Kenya's commercial banks' profits. The study was founded on agency theory and reinforced by international Fischer's affect theory, liquidity preference theory, and interest rate parity. This study employed a causal analysis approach. The participants in this study comprised all of the 39 commercial banks operating in Kenya between 2017 and 2021. The data collecting sheet was used to compile the secondary data. STATA was used to analyse the data using a panel regression model at a 95% level of significance. Tests for multicollinearity, heteroscedasticity, and normalcy as well as the Hausman test were established. Descriptive statistics such as mean, standard deviation and both the minimum and maximum were used to present the data. The study established that while credit risk had a significant negative impact on commercial banks' performance, liquidity risk had a significant positive benefit. Furthermore, exchange risk improved commercial banks' bottom lines, however, this benefit was not statistically significant. Finally, interest rate risk impacted commercial banks' bottom lines negatively but not statistically significantly. According to the study's findings, commercial bank management should be cautious when lending money to new clients and should evaluate existing customers' credit histories before extending credit. To support failing banks, the report suggested that the government and the Central Bank of Kenya increase the minimum liquidity ratio required by law. The government bank should keep a close eye on

commercial banks' liquidity ratios to alert any that are having trouble meeting the minimum statutory requirement.

Keywords: *Financial Risks, credit risk, liquidity risk, exchange rate risk, interest rate risk, financial performance*

1.0 Background of the Study

Commercial banks throughout the world play a vital role in promoting global economic progress. They are financial intermediaries that ascent monetary fund's mainly by issuing saving deposits (deposits payable on request) and time deposits (deposits with strict maturity terms) (Mwai, 2021). Commercial banks perform a crucial role in developing the economy by acquiring stakes and giving or lending them to entrepreneurs as seed capital for business, they directly give loan to the government and offer managerial intelligence to small scale business people. The commercial bank's activities determine the economic development of any state. For the banking industry to carry out and maintain its activities, it must have good financial execution. However, it's difficult to avoid risks. Moreover, the financial performance and chances are interdependent, and they must be assessed together to determine the sustainability or closure of the banks. The business environment factors affect both the financial performance and the risk aspects.

Commercial banks perform their duties in highly volatile and dubious surroundings. Due to competition and globalization of firm activities, the performance of banks has pulled out a lot of attention. It has resulted in firms' cost minimization to acquire more new clients and retain their existing clients; however, the challenge is experienced in selecting the most lucrative form of sound liquidity position.

In the banking sector, there has been a financial crisis at different periods in the world. This clarifies that no economy is exempt from a financial crisis (Alqahtani *et al.*, 2017). Several markets reported a fall in growth rate. Inconsistencies in ROE were apparent between 2017 and 2021. According to the worldwide commercial banks' ROE performance in 2021, the average ROE in the third quarter of that year was 5.31 percent in Germany, 9.3 percent in France, 15.7 percent in Russia, 5.31 percent in the USA, and 8.760 percent in India. Germany's GDP was predicted to fall by 6.3 percent by the European Commission in 2020, compared to declines of 9.7 percent in the United Kingdom, 10.6 percent in France, 10.9 percent in Spain, 11.2 percent in Italy, and an EU-wide decline of 8.3 percent.Commercial banks are essential in helping society allocate its scarce resources to the most lucrative projects and in supporting the wise allocation of risk across the investors (Mwai, 2021). The financial crisis revealed the importance of bank regulation to hedge against risk which attributes to banks' financial potion imbalance.

According to Ndagara *et al.* (2020), every state ought to have a central bank that should stabilize the economy by limiting inflation to prevent the depreciation of Kenyan money. To prevent citizens from losing money, the central banks make sure commercial banks are properly regulated. Since CBK is the only entity with a license to regulate banks, it has the authority to exclude any bank that does not adhere to its standards. The efficiency of management determines the stability of commercial banks. One of the regulations provided by CBK is that all sound financial risk management must be adhered to the latter by commercial banks. From a global point of view, the undertaking related to high-level and low-level performing dealings is the principal concern in modifying the managerial execution or performance. According to Olowo *et al.* (2021), in

conjunction with other shareholders, the state put an effort by resuscitating the liquidating organizations in an endeavor to reconstruct the confidence of possible capitalists or investors and shareholders.

The Basel II standard, according to Zins and Weill (2017), provides guidelines on how much money commercial banks should set aside to safeguard themselves against specific risks. Basel II created capital management and risk techniques to guarantee banks have enough capital reserves.

The Central Bank of Kenya Act, the Banking Act, the Companies Act, and other provident procedures established by the CBK Act govern the banking business in Kenya. According to CBK's (2020) annual supervision report, out of 42 commercial banks, 28 are held domestically, and 14 are foreign possessed with agencies, branches, and outlets all over the country. Foreign banks account for the most significant percentage in terms of asset holding. The Companies Act, the Banking Act, and the CBK Act, and several supplementary provident mechanisms established by the CBK Act all regulate the banking sector in Kenya: Tiers 1, Tier 2, and Tier 3 (Munge, 2020). Tier 1 includes major banks with billions in assets. The Tier consists of top banks in Kenya. Tier 2 and Tier 3 include medium-sized banks and small banks, respectively.

The liberalization of the banking area and the lifting or revitalization of exchange regulation occurred in 1995. The Central Bank of Kenya mandates liquidity, fiscal policy insight, and effective monetary area operation. The CBK publishes the guidelines on the data or information concerning non-banking financial institutions and banks in Kenya. The report entails inflation, macroeconomic variables, and interest rates. The Kenyan government claimed that Chase Bank and Dubai Bank went bankrupt in August 2015 and April 2020, respectively (Mwangi & Jagongo, 2021). Since Chase and Dubai banks fell into receivership due to credit and liquidity concerns, Kenya's central bank stated it had to pay them close attention.

All firms operate in a risky environment, and for them to be successful, they must adopt effective risk mitigation strategies. The firm's management controls the internal environment, but the external environment is beyond its control. The firm's management also experience challenges emanating from systematic risks or non-diversifiable risks which include the following risks; political risks, purchasing power risks and corruption index, among other. Firms tend to predict potential risks since they may have no control over some trouble. For the last two decades, both developing and developed countries have experienced significant transition crises in the economy. Globally firms are looking to establish effective risk mitigation methods to curb the increasing financial risk. Risks in the financial sector include, but are not limited to, those related to foreign exchange, credit, interest rates, and liquidity (Juma & Atheru, 2018). Furthermore, the aforementioned risks make it challenging to forecast a company's financial performance.

The risk that transpires due to variation in interest rates which affects a firm's assets and liabilities, is referred to as interest rate risk (Drechsler *et al*., 2021). The likelihood of deteriorating asset prices due to unanticipated interest rate swings can also be used to characterise the risk. Fixed-rate bond investments are primarily associated with interest rate risk.The risk emanating from customers (borrowers) failing to honor debt obligations at maturity or due date is credit risk. According to Isanzu (2017), credit risk can be defined as the peril to profits and, ultimately, capital caused by a debtor's inability to meet the terms of a credit agreement with the financial institutions.

Mabati and Onserio (2020) assert that financial risks resulting from unanticipated fluctuations in the exchange rate between two coinages or currencies are defined as exchange rate risks. Currency fluctuations have a detrimental effect on economies because they affect the cost of imported goods.

Charmler *et al*. (2018) posit that the probability that an enterprise may be facing difficulties in meeting short-term financial needs as they follow due referred to as liquidity risk. This type of risk typically occurs when a firm faces challenges converting its short-term immediate assets into liquid cash. An asset's liquidity relates to how easy it may be changed into cash without affecting its current stated price or market price. Two measures of a company's liquidity are the quick ratio and the current ratio.

The word "financial performance" refers to the financial metrics used to evaluate and identify the relationship between the company's predetermined objectives and actual performance. It aids management in determining if corporate resources are effectively utilized to create value or significance, hence maximizing shareholder wealth. It can also refer to how well an entity uses available resources to produce a return to financiers or investors. Commercial banks' financial performance has been dwindling taking a dip in 2020 as opposed to before 2017. Financial performance (ROE) and shareholder capital efficiency can be quantified using ROA, ROP, and ROE (ROE). The ratios evaluate the bank's capacity to make money utilizing the resources available to the organization.

The performance of a bank shows how profitable it may be over the long term. By bolstering their capital position and investing their retained earnings, banks protect their profits from unforeseen losses and increase future earnings. A bank with ongoing losses will eventually lose all of its capital, endangering the security of its equity and debt investors. A bank can be considered successful if its return on equity (ROE) is greater than its cost of equity.

Nzuve (2016) asserts that Return on Assets discloses how sound a firm's resources might be used to produce income. A firm with effective utilization of resources results in a higher ROA hence maximizing shareholder wealth. ROE is the most effective statistic for assessing the performance of commercial banks. For the last two decades, the Sub–Saharan African commercial bank has undergone significant shifts. Additionally, Kenya's commercial banks have been doing worse (CBK, 2020). The ROE of these banks, according to the trend, was 24.4% in 2016 and 23.6 % in 2017, respectively. Furthermore, the decline stretched to 22.5% in 2018, 21.8% in 2019 and a further decline to 13.9% in 2020. It is a clear indication of declining progress in ROE, suggesting a steadily reduced financial performance.

Several theories have been advanced in an attempt to explain the association between financial risk and how well commercial banks do financially. The agency theory, for instance, explains that a shareholder's value is maximized by reducing agency problems that occur between agent and principal. Different theorists have tried to derive the association between the different types of risk and how they affect overall performance (Muthinja & Chipeta, 2018). Theoretically, therefore, an upsurge in additional financial risks lowers the financial performance of banks.

Financial risks emanate from uncertainties related to variations in foreign exchange rates, interest rate volatility, liquidity management, and bank loan evasions. This indicates that other indicators should be taken into account when making judgments about banking activities in addition to the return on assets (ROA) ratios and return on equity (ROE) ratios. According to Umar and Dikko (2018), banks' capacity to identify, assess, manage, and repair problems have an impact on a company's or organization's profitability.

Numerous studies have linked financial success to risk. Charmler *et al*. (2018) looked at how liquidity risk affects how well commercial banks do their jobs. In a unique study, Isanzu (2017) wanted to find out how credit risk affects how well banks do financially. When analyzing the

relationship between the two variables, these two research serve as a baseline. The scope of the risk that has to be evaluated must be determined before one can determine the link between the two variables. The investigations in the two examples were based on liquidity and credit risk. It was determined how the variables related to one another. If banks had access to greater credit and liquidity, their efficiency would likely suffer.

1.1 Statement of the Problem

Commercial banks' performance has steadily declined over time (CBK, 2020). The ROE of these banks, according to the trend, was 24.4% in 2016 which declined to 23.6 % in 2017. Furthermore, the decline stretched to 22.5% in 2018, 21.8% in 2019 and a further decline to 13.9% in 2020. It is a clear indication of deteriorating ROE growth, implying consistently lower financial performance over the stated periods.

Over the last few years, firms have attempted to explain the low performance of these institutions. Nevertheless, it has not been easy to achieve. Therefore, for banks to establish profitability, it has to consider the macro and micro environmental demands (Chidozie & Ayadi, 2017). For firms to improve their performance, then they must put into practice prudent risk mitigation practices. Financial risk threatens Kenya's banking system. The biggest risks for banks include liquidity, credit, currency rate, and interest rate. Interest rate and exchange rate risks, which are macroeconomic risks, don't have much to do with managers. On the other hand, the microeconomic variables include factors that face specific individual banks and managers having complete control over them, and the variables are liquidity and credit risk.

Numerous aspects of banks' financial risk and performance have been the subject of empirical studies in the past, although the results have varied. Empirical data is used in the following studies on bank financial risk and performance: Maniagi (2018), Abdulrehman and Nyamute (2018), Hoque *et al*., (2020), Gikombo and Mbugua (2018), Juma and Atheru (2018), Mabati and Onserio (2020), Muriithi (2016), Charmler *et al.*, (2018), Maniagi (2018), Isanzu (2017), Ndalu (2018), Paul and Musiega (2020).

As an illustration, Charmler *et al., (*2018)'s research found a negligible correlation between commercial banks' financial performance and liquidity risk. According to research by Abdulrehman and Nyamute (2018), commercial banks performed significantly better. While the findings of other researchers, such as Maniagi (2018), show that interest rate risk is strongly linked to the same variable, commercial banks' profits are negatively affected by credit risk.Comprehensive studies examining the link between financial risks and financial success have yielded mixed results. While some studies identified a link between risk and financial success, others discovered a weak or nonexistent link (both negative and positive).

The researchers used alternate financial risk operationalization, and several of these results or studies are focused on governments other than Kenya. The research assessed Kenyan commercial banks' financial risks and performance. It attempted to fill the knowledge gap by analyzing financial risk in Kenyan business banks. The study examined how the interest rate, currency, loan, and liquidity risks affect Kenyan commercial banks' profitability.

1.2 Research Objectives

1. To determine the effect of credit risk on the financial performance of Commercial Banks Kenya.
2. To establish the impact of liquidity risk on the financial performance of Commercial Banks in Kenya.
3. To determine the effect of exchange rate risk on the financial performance of Commercial Banks in Kenya.
4. To investigate the effect of interest rate risk on the financial performance of Commercial Banks in Kenya.

1.3 Research Hypotheses

The following null hypotheses guided the research.

H01: Credit risk has no significant effect on the financial performance of Kenyan commercial banks.

H02: Liquidity risk has no significant effect on the financial performance of Kenyan commercial banks.

H03: Exchange rate risk has no significant effect on the financial performance of Kenyan commercial banks.

H04: Interest rate risk has no significant impact on the financial performance of Kenyan commercial banks.

2.1 Theoretical Review

The study included Fischer's effect, interest rate parity, agency, and liquidity preference theories.

2.1.1 Agency Theory

Jensen and Meckling (1976) mooted the concept of "agency," and Tekin and Polat (2020) define agency theory as a strategy for resolving and elucidating agent-principal disputes. The concept tries to maximize shareholder value by minimizing agency issues that arise between the principal and the agents. The hypothesis establishes a clear or direct link between organizational effectiveness and financial results. The industry is determined by the agreement between the owners of production-related assets and the agents, claim Jensen and Meckling. The primary difficulty between the principal and agent is information asymmetry. The improvement of information flow strikes a balance between the parties' competing objectives.

This is the study's underlying hypothesis. In that agency expenses are reduced after the owner's requests have been met, this notion is pertinent to my research. In this study, commercial banks are the subject, and the board of directors acts in the shareholders' best interests. However, they might not always act in the shareholders' best interests, who desire to increase their wealth.

2.1.2 Interest rate Parity Theory (IPT)

Keynes came up with the hypothesis (1923). The theory contends that differences in interest rates across trade nations are to blame for fluctuations in the minimum interest rate. Additionally, interest rate parity governs how rates of interest and exchange are related to one another. To determine the forward rate, one must first multiply the spot exchange rate by the interest rate in their home country and then divide that result by the interest rate in their target country (Ismailov & Rossi, 2018). IPT offers an understanding of interest rate parity, a crucial idea in the banking sector.

The connection between this theory and interest rate concerns, which are crucial to banks' operations, makes it pertinent to my research. The method aids in calculating the interest rates that banks impose on loans and financial services. This argument implies that higher earnings result in enhanced commercial banks' financial health and higher interest rates.

2.1.3 International Fischer's Effect Theory (Irving Fisher 1930)

Irving Fisher put up this hypothesis in 1930 and published it in The Theory of International Fishers Effect. He contended that exchange rates and interest rates are linked. According to the theory, since opportunities for arbitrage between businesses or financial institutions arise as a result of capital movements, the actual rate of interest is the same across all nations. It suggests that a country with a lower interest rate has lower inflation, and vice versa. However, this means that the country's actual currency depreciates with time. Due to the fluctuation in currency demand and supply, which results in a price change and, consequently, an exchange rate, the theory applies to the banking industry. In relevance to this study, the theory is linked to Foreign exchange rates risk, which highly affects commercial banks in Kenya (Mabati & Onserio, 2020). The approach considers the market rate of interest and ignores the inflation rate in elucidating the exchange rate changes.

Currency exchange rates reveal interest rate vulnerabilities in terms of risk-free instruments of numerous currency alternatives. The currency of a country faced with high-interest rates in the prevailing market is expected to appreciate with time. Kalemli-Ozcan and Varela (2019) posit that

a high nominal rate leads to foreign currency depreciation having a high-interest rate due to predictions of the higher inflation rate forward contracts, negotiated through commercial banks, allow businesses to lock in exchange rates for the foreseeable future, mitigating financial risk associated with currency exchanges. This study-related theory explains how the nominal interest rate and the current inflation rate are related and how these two factors affect commercial banks' financial performance.

2.1.4 Liquidity Preference Theory

Keynes created the liquidity preference theory in the year 1936, He argued that shareholders tend to petition high-interest rates in securities involving long-term maturities, which is riskier because the shareholders or investors end up opting for highly liquid holdings or cash. Keynes, in this theory, also argued that short-term securities are charged lower interest rates since rational investors or shareholders scarify their liquidity by purchasing assets on long-term or medium-term securities. In relevance to this study, the theory is linked to liquidity risk and assumes that the more liquid the investment is, the more traded for its entire worth.

According to Krisnasari (2019), individuals have different preferences or motives for liquidity, including transaction motives, precautionary motives, and speculative motives. The three explanations define how liquidity is necessitated by individuals. The desire to hold cash balances necessary for day-to-day transactions is devoted to the transaction purpose or motive of money. This purpose or motive necessitates individuals and business units to meet payments of arising obligations by keeping minimum cash balances. The gap between expenditure and receipts of income can be bridged through individuals holding cash. This is because an individual's income is continuous although, the expense occurs daily. Keynes argues that people's need for cash is proportional to their level of national income.

The precautionary motive is termed as the unpredictable or unforeseen contingencies which occur daily and involve money payments (Gan, 2019). Businesses and individuals keep a share or portion of their revenue to cater to such unpredicted expenditures. The size of income is the primary determinant of the level of income demanded under this motive. The other reason or justification apart from the two motives is the speculative motive. Chireka and Fakoya (2017) contents that the speculative motive of money reflects an individual's aspiration to hold cash to exploit any eye-catching investment prospect. According to Keynes, individuals have money to take advantage of impending variations in bond prices and variations in the rate of interest.

This theory is pertinent to my research since it focuses on liquidity risk, one of the main independent variables, and attempts to illuminate the significance of people owning cash assets. It suggested that customers choose liquid assets and stay away from banks' high liquidity risks.

2.2 Empirical Review

2.2.1 Interest rate risk and financial performance

The financial health of commercial banks in Kenya was scrutinized by (Maniagi (2018). The independent variables that were examined were a market risk, interest rate risk, and credit risk. This study used a descriptive approach to research. The outcomes hurt Kenya's commercial banks' interest rates and financial performance. Before generating conclusions and judgments, the study did not evaluate the data's accuracy and sufficiency.

In their study, Abdulrehman and Nyamute (2018) examined how mortgage financing affected Kenyan commercial banks' financial results. The study focused more on Kenyan commercial banks that provide mortgage services. The study's data analysis employed both correlation and regression analysis. Interest rates were also one of the variables explored. The research showed that commercial banks' interest rates on mortgage loans are related to their financial stability. Financial institutions can grow more quickly by charging higher interest rates on mortgage loans. This analysis determined how interest rate risk affects Kenyan commercial banks' bottom lines.

Hoque *et al.* (2020) looked into how Nigerian commercial banks' profitability was affected by monetary policy. They conducted their investigations using a variety of money supply indicators, including interest rates and the cash reserve ratio. They employed cash ROA as their performance metric. Regression analysis employed by the researchers found a weak correlation between and commercial bank profitability and interest rate risk.

2.2.2 Exchange Rate Risk and Financial Performance

Researchers in Kenya looked into how different economic variables affected publicly traded companies (Gigombo & Mbugua, 2018). Real interest rates, inflation, currency exchange rates, and gross domestic product (GDP) were employed as independent variables in this study. The connection between factors and Kenya's commercial banks' profitability was described using descriptive approaches. According to the 2016 annual supervisory report, all 44 commercial banks were included in the probe. The investigation revealed that the influence of exchange rates on commercial banks' earnings was the least of all the factors included. To evaluate the effectiveness of commercial banks, this study focused on their Return on Equity (ROE).

Juma and Atheru (2018) investigated Kenyan commercial banks' financial risk assessments and performance appraisals. Some of the independent elements taken into account in this study include interest rates, credit, liquidity, and currency risk. Return on Assets was used to assess how well commercial banks performed. Data was analysed using statistical data panels and explanatory research designs. Data indicated a very substantial association between exchange rate risks and bank performance. Return on equity was used to find out how profitable Kenyan were commercial banks. Mabati and Onserio (2020) investigated the effects of central bank rates on the operations of commercial banks. In this study, we used several foreign exchange risk indicators as independent variables. To examine the study's data, regression analysis was used. The study's foundations were private banks rather than the central bank.

2.2.3 Liquidity Risk and Financial Performance

Muriithi (2016) examined how financial risks affected the profitability of Kenyan banks. The Breusch and Chow tests were applied to a sample of 43 Kenyan banks drawn from the 2015 Annual Bank Supervisory Report to ascertain whether the fixed-effect model was accurate. The model made use of some financial risk indicators, including those related to liquidity, operations, credit, and the market. Profitability among Kenya's commercial banks was found to be significantly impacted by liquidity risk.

Researchers in Ghana looked into the role that bank liquidity played in the success of commercial banks (Charmler et al., 2018). During the course of ten years, research was carried out utilizing a panel design with a sample size of twenty-one different financial institutions. Analyses such as regression and descriptive statistics were used, and also a correlation analysis. A modest inverse

relationship was found between the prosperity of Ghanaian banks and the possibility of insolvency. Despite Kenya's relative backwardness, the research was conducted in Ghana.

Chukwunulu *et al.* (2019) looked into how risk management affects how well commercial banks in Nigeria do their jobs. There were two additional independent criteria utilized in the study: credit risk and liquidity risk. Data collection for the study was spread out across 23 years the data's utility was evaluated using OLS regression. There was no correlation between liquidity risk and profitability at investigated banks. This research only looked at Nigerian banks, which serve a different clientele than their Kenyan counterparts.

2.2.4 Credit Risk and Financial Performance

Ndalu (2018) researched credit risk management, focusing on Kenyan deposit-taking saving and credit cooperatives. SACCOS managed credit risk. This descriptive analysis of Nairobi SACCOs shows credit evaluation influences their success. Muriithi (2016) researched how financial risks affect Kenyan banks' profitability. Breusch and Chow tests were used on data from 43 banks in Kenya to examine the performance of the fixed effect model. Operations, market, liquidity, and credit concerns all pointed to a financially unstable environment. The efficiency of Kenya's commercial banks has been shown empirically to be significantly impacted by credit risk.

To investigate how microfinance institutions in Nairobi County deal with credit risk, Paul and Musiega (2020) conducted a study. Researchers in this study interviewed 1,147 people working at a single Nairobi-based microfinance organization. This study's data analysis was performed using SPSS by the researcher. Inferential and descriptive statistics were utilized during data analysis. Credit risk management strategies affected Kenyan microfinance banks' profitability, the study found. This research increased understanding regarding Kenya's commercial banks' profitability.

2.2.5 Financial performance of commercial banks in Kenya

The financial condition of Romanian commercial banks listed on the Bucharest Stock Exchange was examined by Maria-Daciana (2015). Using the Du Pont model, researchers analyzed the financial profitability of three successful commercial banks. The research demonstrated that financial institutions need a constant leverage ratio to increase financial performance and reduce capital expenditures. Since the study's primary focus was on the correlation between leverage and financial success while neglecting to take into account any other aspects, there is a hole that has to be addressed. To bridge the knowledge gap, this study analysed the profitability of commercial banks traded on Kenya's Nairobi Stock Exchange.

2.3 Conceptual Framework

A group of connected ideas presented in a logical sequence to show how they relate to one another is known as a conceptual framework.

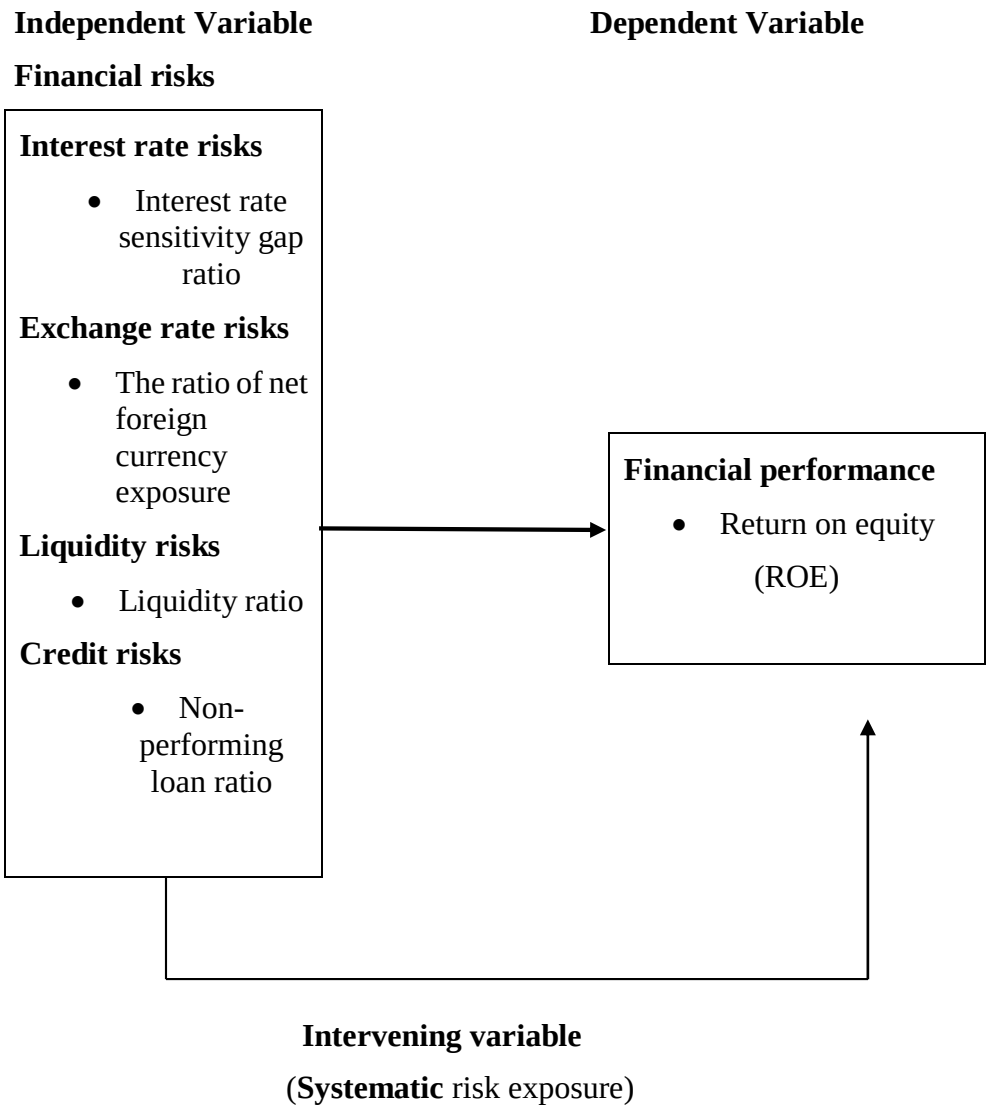

Figure 1: Conceptual Framework

Source: Researcher (2022)

3.0 Research Methodology

To carry out this analysis, a design for a causal study was utilized. Using a causal design, the researcher set out to determine what kind of relationship exists between an experiment's independent variables and the dependent ones that resulted from the experiment (Iacus et al., 2019). The study's causal methodology, which aims to shed light on how the presence of financial risks affects Kenyan banks' financial performance, was thus demonstrated to be reliable. All of the pertinent observations from a collection make up the population, such as the events or subjects that an investigator in charge of the study has opted to concentrate on (Asiamah et al., 2017). Between 2017 and 2021, 39 Kenyan commercial banks that were operational were the subject of this investigation. Kenya had 39 commercial banks in operation between 2017 and 2021. All of these were looked at in our study. Due to the study's focus on the relatively small population, a

census of the 39 banks was conducted. When a population is large enough to include every survey component, a census sampling approach is used (Mugenda &Mugenda 2003).

A panel regression model was used by the study because the data was in a panel format. Banks' bottom lines were broken down into four categories based on the correlation between credit, interest, currency exchange rates, and liquidity problems:

$$Y = \beta 0 + \beta 1X1 + \beta 2X2 + \beta 3X3 + \beta 4X4 + \epsilon.$$

Where:

Y – Annual financial performance information provided by ROE.

β0 – y intercept of an equation

X1 – The percentage of loans that are not repaid compared to the total number of loans is used to calculate credit risk.

X2 – The ratio of total loans to total deposits is a measure of liquidity risk.

X3 – Exchange rate risk calculated as the difference between net foreign coin exposure and net assets.

X4– A measure of the exposure to interest rate risk between short-term assets and liabilities with maturities within one year.

β1 – β4 – The regression coefficients that assess the sensitivity of Y to variations in X.

Є - Error term that compensates for variables that are left out of the function.

t – The time span (year).

The research made use of open-access sources; specifically, data entered from annual reports of banks operating between January 2017 and December 2021. The banks' annual reports and the CBK Website contributed greatly to the available data for the research. The annual reports for 39 commercial banks that are available on the website of Kenya's central bank were used as secondary data in this study. To proceed, the National Commission for Science and Technology (NACOSTI) provided its final approval. A data capture sheet was utilized to collect data.

The act of transforming raw data into a format that can be used to conclude, recommend policies, and identify areas that need more research in other studies is what is known as data analysis. The multiple regression data analysis models used STATA for the analysis. Inferential and descriptive analysis are the two primary categories used in data analysis. Panel regression was the methodological framework employed for the inferences drawn. Inferences were drawn about the study population using the panel regression model's statistical output. By using a 95% confidence interval, the null hypothesis was either accepted or denied.

The mean, the lowest and maximum number of observations, and the standard deviation were also included in the descriptive analysis. Tables and graphs were used to display the results. All the necessary ethical considerations were observed; The Kenyatta University ethics committee reviewed the study to ensure that it meets ethical standards and that the researcher follows those standards. Similarly, a research authorization from the NACOSTI was obtained before the researcher began contacting the relevant parties to collect data.

4.0 Findings and Discussion

4.1 Descriptive Statistics

In this section, the statistics of the study were broken down into their parts, including the number of observations, the mean, the standard deviation and the maximum and minimum values of the research study as presented in Table 1.

Table 1: Descriptive Statistics

Variables	Observations	Mean	Std. Dev.	Min	Max
Return on Equity	195	2.34	43.46	-375.7	82.1
Credit Risk	195	18.54	15.50	0	76.20
Liquidity Risk	195	43.40	19.41	-3.1	123.6
Exchange risk	195	2.11	0.05	0.008	2.51
Interest Risk	195	0.90	0.01	0.86	0.98

Source: Research Data (2022)

From 2017 to 2018, 195 observations were collected from 39 continuously operating commercial banks, as shown above. According to the data, the average Return on Equity (ROE) was 2.34 percent, with a standard deviation of 43.46 percent and ranges of 82.1 percent to -375.7 percent. This research established that credit risk averaged 18.54, and a standard deviation of 15.50. A maximum of 76.20 and a minimum of 0, while liquidity risk averaged 43.40, with a standard deviation of 19.41, a maximum of 123.6 and a minimum of -3.1. Interest rate risk averaged 0.90 with a standard deviation of 0.01 and ranged from 0.86 to 0.98, while exchange rate risk averaged 2.11 with a standard deviation of 0.05, 2.51 to 0.008.

4.2 Regression Analysis

To confirm the variables were appropriate for the study, a regression analysis was conducted after the diagnostic test was run. To determine how financial risks, affect the productivity of Kenya's commercial banks, this research employed a panel regression analysis approach. The data was analysed using panel random regression, and Table 2 displayed the results.

Table 2: Panel Regression Analysis Results

Random-effects GLS regression Number of obs = 195

Group variable: ID Number of groups = 39

R-squared: Observations per group

within = 0.5951 min =5

between = 0.6302 avg =5.0

overall = 0.7308 max =5

Wald chi2(4) =10.80

corr (u_i, X) = 0 (assumed) Prob > chi2 =0.029

ROE	Coef.	Std. Err.	z	P>z	[95% Conf.	Interval]
Credit Risk	-0.6795	0.2338	2.91	0.004	-1.1379	-0.2211
Liquidity Risk	0.2079	0.3460	-2.08	0.039	-1.4045	-0.0371
Exchange Risk	0.9125	1.1045	0.83	0.409	-3.0773	1.2522
Interest Risk	-0.1137	0.2035	0.56	0.576	-0.2851	0.5125
cons	2.1363	19.71	0.11	0.914	4.7857	3.6513

sigma_u 0.7303

sigma_e 0.8181

rho = 0.6576 (fraction of variance due to u_i)

Source: Research Data (2022)

The preceding figures reveal that commercial banks' financial performance (ROE) drops by 0.6795 times for every unit rise in credit risk, with a significant p-value of 0.004. Secondly, a p-value of 0.039 indicates that an increase of one unit in liquidity risk is associated with a 0.2079-fold improvement in financial performance. Thirdly, there was no statistically meaningful link between currency volatility and economic growth (p = 0.409), but a 0.9125-fold increase in foreign exchange risk did result in a higher financial return. For every one-unit rise in interest risk, commercial banks' financial performance decreased 0.1137 times, with a p-value of 0.576. An overall R square of 0.7308 indicates that the independent variable return on equity (ROE) in Kenya's commercial banks may be partially explained by foreign exchange risk, interest risk credit risk and liquidity risk. The difference of 0.2692 was brought about by other factors that were left out of the analysis. Consequently, the panel regression equations.

$Y = 2.1363 -0.6795X_1 +0.2079X_2+ 0.9125X_3-0.1137X_4+0.6576$

4.3 Hypothesis Testing

Using the aforementioned regression results as a foundation, this section outlined the goals of the study at the 5% significant level.

H_{01}: Effect of Credit risk on the financial performance of commercial banks in Kenya

The primary purpose of this research was to examine how lending practices affect the bottom lines of commercial banks in Kenya. For this reason, the researchers hypothesized that commercial banks in Kenya would not be negatively impacted by credit risk. The study's findings were contrary to the null hypothesis at the 5% level, proving that commercial bank profits were drastically impacted by credit risk. But the relationship between financial outcomes and credit risk is inverse. The results of this study support those of Ndalu (2018) and Muriithi (2016), who found that a rise in credit risk negatively affects profits.

H_{02}: Effect of Liquidity risk on the financial performance of commercial banks in Kenya

The secondary objective of this research was to examine the impact that liquidity risk has on the profitability of Kenya's commercial banks. This study aimed to disprove the widespread belief that Kenya's commercial banks are immune to liquidity shocks by examining their profitability in the face of these events. Commercial banks in Kenya were found to be highly dependent on available financial resources, which significantly impacted their fiscal performance. The results indicate that the null hypothesis cannot be rejected (at the 5% level of significance). The findings of the research collaborated a claim made by Muriithi (2016), to the extent that commercial banks' financial performance is significantly impacted by their liquidity positions.

H_{03}: Effect of exchange risk on the financial performance of commercial banks in Kenya

The third objective of the study sought to find out how much commercial banks' financial performance was impacted negatively by currency exchange risk. The primary assumption of the study was that currency risk had a minimal impact on the financial performance of commercial banks in Kenya. The results show that Kenyan commercial banks' profits are unaffected by the current exchange rate. At the 5% significance level, the results did not rule out the possibility of an incorrect null hypothesis. There was a substantial correlation between exchange risk and profitability among Kenyan commercial banks. This result conformed with the results by Gigombo and Mbugua (2018) that exchange risk improved the commercial banks' financial performance. This finding runs counter to the work of Juma and Atheru, who discovered that currency fluctuations have a major impact on the bottom lines of Kenya's businesses.

H_{04}: Effect of interest risk on the financial performance of commercial banks in Kenya

The fourth objective was to determine the effect Kenyan commercial banks went realised on interest rate risk. The research was conducted to disprove the idea that interest-rate uncertainty significantly impacts Kenya's commercial banks' profitability. The results debunked the theory that commercial banks in Kenya are vulnerable to interest rate risk. The lack of a significant rejection of the null hypothesis at the 5% level further supports its validity. Commercial banks in Kenya typically have a bad financial performance when interest rates fluctuate. In line with the findings of Maniagi (2018), which discovered that rising interest risk reduces a company's revenue-generating potential, this analysis confirmed that hypothesis. However, contrary to the findings of Hoque et al (2020), the researchers discovered that commercial banks' financial performance was unaffected by interest rates.

5.0 Conclusion

Despite how carefully risk management is implemented, financial losses are an unavoidable element of operating a commercial bank. Commercial banks experience the poor financial performance as a result of the financial risks they pose, which dilute their earnings.

A few generalizations were made in light of the study's findings. For Kenya's commercial banks, credit risk was demonstrated to have a negligible but detrimental impact on profitability. The reduction of commercial banks' exposure to liquidity risk, according to Kenyan academics, was advantageous. In addition, the analysis found that Kenyan commercial banks benefited from exposure to exchange risk, even if the impact was not statistically significant. The research found that commercial banks in Kenya did feel the negative consequences of interest risk, but the effects were not statistically significant.

6.0 Recommendations

The study made some policy recommendations based on the factors that were shown to have the greatest influence on Kenya's commercial banks. According to this study's findings, credit risk has a major detrimental effect on Kenya's commercial banks. The study suggests that commercial bank management implements rigorous processes to evaluate the creditworthiness of customers applying for loans and that commercial banks should not advance loans to new customers without learning their credit history to evaluate their ability to pay. This is because many credit defaulters borrow from various credit lending institutions without clearing their loans.

The study concluded that liquidity risk has a notable beneficial effect on the financial outcomes of Kenya's commercial banks. The study's results prompted researchers to recommend that Kenya's Central Bank (CBK) maintain a close check on commercial banks' liquidity ratios, providing warnings to those that are falling short of the required 20% and taking action in extreme circumstances. The Kenyan government, backed by the Central Bank of Kenya, is considering raising the minimum statutory requirement for commercial banks to further restrict those that are particularly weak.

The primary focus of the study was the overall financial performance and sensitivity to the financial risk of Kenya's commercial banks. More research on the same issue might be useful because the independent variables (Credit risk, Liquidity risk, Exchange risk, and Interest risk) explain a great deal about the dependent variable (financial performance; ROE). Even if it's important to analyse Kenya's commercial banks' financial stability and growth, a better suitable dependent variable metric is recommended.

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