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Interest Rates Risk and Financial Performance of Commercial Banks in Kenya

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Abstract

Financial performance is critical for banks because it determines their ability to generate profits, manage risks, and retain the trust and confidence of their customers, shareholders, and regulators. Strong financial performance improves a bank's reputation and increases stakeholder trust and confidence. The financial performance of commercial banks has been volatile over time, as evidenced by return on assets. The study sought to establish the relationship between interest rate risk and the financial performance of Kenyan commercial banks. The study specifically sought to determine the impact of interest rate risk on the financial performance of commercial banks in Kenya. The study was based on Liquidity Preference Theory. The study followed a descriptive research design. The study's target population was Kenya's 39 commercial banks regulated by the CBK as of December 31, 2022. Prior to data collection, an introduction letter was obtained from Jomo Kenyatta University of Agriculture and Technology. The study used a census sampling technique, which included all of the accessible population from all 39 commercial banks. Data were collected from secondary sources using a secondary data collection sheet. The data was gathered from financial and statistical reports issued by the respective banks, the CBK and KNBS. Data was analyzed using both descriptive and inferential statistics. The descriptive statistical tools used were minimum, maximum, mean, standard deviation, skewness, and kurtosis. Pearson Correlation Analysis and panel regression analysis were among the inferential statistic tools used. The findings revealed that interest rate risk has a significant effect on the financial performance of commercial banks in Kenya, with a P-value of 0.000. The study concluded that interest rate risk affects the financial performance of Kenyan commercial banks. The study recommended that Kenyan commercial banks monitor interest rate trends on a continuous basis and adjust their lending and investment strategies to maintain profitability in the face of changing markets.

Keywords: *Interest Rates, Risk, Financial Performance, Commercial Banks, Kenya*

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1.0 Background of the Study

Financial performance is important for banks because it determines their ability to generate profits, manage risks, and maintain the trust and confidence of their customers, shareholders, and regulators (Ng'ang'a, 2017). One of the most important indicators of a bank's financial performance is its profitability, which is typically measured by return on assets and return on equity. Return on assets measures the bank's ability to generate profits from its assets, whereas return on equity measures the return earned by shareholders who invested in the bank. Financial performance is critical in determining asset quality because it reflects the quality and sustainability of the loan portfolio, as well as the ability to generate profits, meet obligations, and create value. Banks must effectively manage their risks to ensure that loans are repaid on time and do not result in losses due to default. A strong financial performance improves a bank's reputation and increases trust and confidence among its stakeholders, including customers and regulators. A good reputation can help you attract and retain customers, lower your capital costs, and get more funding (Irawati et al., 2019). Financial performance determines a bank's profitability, which is critical for generating revenue and expanding the business. Profits can be reinvested in new products and services, expanded operations, and enhanced customer experience (Chen, Kumara, & Sivakumar, 2021). A bank with strong financial performance is more likely to have effective risk management systems in place, which help reduce the likelihood of losses and maintain stakeholder confidence. It allows individuals and businesses to make informed decisions, track progress, manage risks, and contribute to overall economic well-being (Akileng, 2018).

Interest rate risk is the potential risk to a bank's capital and earnings resulting from adverse interest rate movements that affect its book positions. Banks have assets and obligations with varying maturities and interest rate risk characteristics, so they are frequently exposed to interest rate risk (Scandizzo, 2016). Net interest income may increase as interest rate risks rise because the interest received on loans may exceed the interest paid on deposits. However, as interest rates fall, a bank's net interest income may fall because the interest it receives on loans declines faster than the interest it pays on deposits, reducing profitability. When interest rate risk rises, the value of a bank's fixed-rate assets may decrease; when interest rate risk falls, the value of a bank's fixed-rate liabilities may increase, resulting in a decline in the bank's overall performance. (Karugu et al., 2021). Kenya's banking sector consisted of 41 institutions as of December 31st, 2022. Of the 41 banks, 39 are commercial banks, with one mortgage financing company and one mortgage refinance company. The ownership of the 41 banking institutions is as follows: 38 are privately owned, with the Kenyan government owning the majority of 3 (CBK, 2022). Kenya's banking industry is governed by the Companies Act, the Banking Act, the Central Bank of Kenya Act, and the Central Bank of Kenya Prudential Guidelines (CBK, 2022). The CBK is the sole regulatory authority for all Kenyan banks, with the mission of providing stability through the licensing, supervision, and regulation of financial institutions. According to its mandate under the CBK Act, the CBK provides regulatory and legal frameworks as well as prudential guidelines to govern the operations of financial institutions (Kinyua, 2020).

Commercial banks in Kenya have evolved over time, with the industry experiencing significant growth (Muthinja & Chipeta, 2018). Some have progressed from saving societies to tier one banks with stringent operating regulations. The banking industry is a key pillar in achieving Kenya's Vision 2030 by increasing savings, encouraging Foreign Direct Investment (FDI), protecting the economy from external shocks, and propelling Kenya to become a leading financial centre.

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Muraithi (2016). The banking sector's total net assets stood at Ksh.6.6 trillion as of December 31, 2022, up from Ksh.6.0 trillion in December 2021, representing a 21.9 percent increase. In this context, risk management has been implemented, and its effects on profitability are being felt throughout the economy. There were 22 domestic operating banks, accounting for 67.9% of total net assets, and 17 foreign-owned operating commercial banks, accounting for 32.1% of the sector's assets (CBK, 2022). In 2010, Basel III addressed systemic and firm-specific risks and implemented new and stricter liquidity and capital management rules in the banking sector.

Assessing the adoption of risk management by commercial banks in Kenya reveals that there has been a significant improvement in how banks manage risks, with a number of them implementing risk management systems. Improved risk management in Kenyan commercial banks contributed in some way to the banks' financial performance, as evidenced by their profitability margin, which has increased over time but with fluctuating trends (Kinyua, 2020). Kenyan commercial banks are frequently exposed to systemic risk, which includes insufficient capital, inflation, currency volatility, and political instability (Ahmed, 2015). These elements may have a negative impact on banks' and borrowers' overall financial strength, potentially lowering loan quality and increasing default rates. Banks' financial performance may be impacted by changes to laws and regulations imposed by the government or the Central Bank of Kenya, such as adjustments to capital adequacy ratios, loan provisioning regulations, and interest rate risk policies (Mwikali, 2018). Kenya's commercial banks are interdependent, so systemic risk can easily spread throughout the country's banking sector. Kenyan banks may struggle to meet short-term obligations due to liquidity risks such as depositor panic withdrawals, changes in cash flows, or interbank market disruptions.

1.1 Statement of the Problem

The success of Kenyan commercial banks has a significant impact on the country's financial stability and economic development. The financial performance of commercial banks has a direct impact on investor and customer confidence, as well as market stability. Commercial banks' financial performance is critical because the sector's health has a direct impact on the overall economy's health (Kemboi 2018). However, the banking sector's performance has fluctuated and been volatile over time as measured by return on assets (ROA) (Abdulrehman & Nyamute, 2018). In December 2018, the sector's total return on assets was 3.5%, up from 3.33% in 2017. In 2019, the sector registered a 3.3% return on assets, a decrease from 2018. The fluctuation was further seen in 2020, with a return on assets of 2.07%, a decrease from 2019. In December 2021, the sector recorded a ROA of 3.3%, up from December 2020 (CBK, 2021). The sector's ROA increased to 3.7% in 2022, up from 2021 (CBK, 2022). A strong financial performance enables commercial banks to build and maintain a healthy capital base, ensuring stability and the ability to withstand economic shocks, as well as competitiveness in attracting and fostering customer loyalty (Mwai & Fredrick, 2017). Volatility in financial performance can have serious consequences for banks, including reduced capital adequacy, restricted lending activities, inability to provide essential banking services, and failure to meet national goals such as Kenya's Vision 2030, in which the sector is an essential pillar (Muriithi, 2016). Studies on systematic risk and financial performance in commercial banks have yielded contradictory results. Muriithi (2016) found that increased exposure to interest rate and foreign exchange risks was significantly related to bank income. According to Otambo (2016), sound systematic risk management practices have a positive impact on bank financial performance. This study attempted to fill conceptual and contextual gaps by

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examining the impact of interest rate risk on the financial performance of commercial banks in Kenya over a five-year period (2018-2022).

1.2 Objectives of the Study

The general objective of this study was to establish the effect of interest rates risk on financial performance of commercial banks in Kenya.

1.3 Research Hypothesis

H_{01}: Interest rates risk does not have significant effect on financial performance of commercial banks in Kenya.

2.0 Literature Review

The section presents the theoretical review, empirical review and conceptual framework.

2.1 Theoretical Review

The theory that inform the objective of the study is liquidity preference theory. John Maynard Keynes developed the liquidity preference theory in his 1936 book "The General Theory of Employment, Interest, and Money" (J. M. Keynes, 1936). It investigated the relationship between interest rates and demand for money. The theory proposed that investors prefer to keep their wealth in liquid form rather than illiquid assets such as bonds or stocks. Keynes identified three reasons for people to keep money: transactional, precautionary, and speculative reasons. When interest rates are high, the opportunity cost of holding money rises, reducing the demand for money. Keynes also introduced the concept of the liquidity trap, in which interest rates are so low that people prefer to keep cash rather than invest it, even if it yields no interest. Central banks can use open market operations, discount rates, and reserve requirements to control the money supply and steer the economy toward price stability. According to Liquidity Preference theory, money is the most liquid asset in an economy, meaning it can be easily converted into goods and services without incurring significant transaction costs or loss of value. It also assumes that when interest rates are low, individuals and businesses incur an opportunity cost by holding money rather than investing it in interest-bearing assets. It is assumed that individuals prefer liquidity due to the need to conduct daily transactions, as well as to satisfy precautionary and speculative reasons for holding money (Lavoie & Reissl, 2019). Furthermore, the theory assumes that interest rates and money demand are inversely proportional. As interest rates rise, the opportunity cost of holding money rises, prompting businesses to reduce their cash holdings in favor of interest-bearing assets. In contrast, as interest rates fall, the opportunity cost of holding money decreases, increasing demand for money. However, Liquidity Preference theory has been criticized for making static assumptions about individuals' liquidity preferences and behavior in response to interest rate changes. In reality, individual and business behavior may be more complex and dynamic, influenced by a wide range of economic and psychological factors. Second, the theory's assumption of an inverse relationship between interest rates and demand for money may oversimplify the factors influencing interest rates. Third, the theory focuses primarily on the demand side of the money market, ignoring the supply side and central banks' role in influencing interest rates through monetary policy, making it overly simplistic. Finally, it struggles to explain periods of persistently low interest rates, such as those that occur during economic downturns. As a result, it may not adequately account for factors such as liquidity traps, in which nominal interest rates remain low despite central bank efforts to stimulate economic activity (Lavoie and Reissl, 2019).

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2.2 Empirical Review

Wamalwa and Mukanzi (2018) studied the impact of interest rate risk management practices on the performance of commercial banks in Kenya. The study used a descriptive research design with a panel data analysis. The study analyzed both primary and secondary data from the banks' financial statements. The primary data was analyzed using SPSS, while the panel data was analyzed using STATA. The study found that interest rate risk management had a significant impact on commercial banks' financial performance and recommended that banks develop strong frameworks for effectively managing financial risks. However, there was little data on interest rate risk for the sampled banks, and there were few comprehensive empirical studies, particularly in emerging markets, that critically examined commercial banks' interest rate risk exposures as well as quantitative approaches to evaluating interest rate risk. Maniagi (2018) examined the impact of interest rate risk on the performance of commercial banks in Kenya. The study used a descriptive research design and secondary data from the bank's website and the Kenyan Central Bank, with a population of 44 commercial banks from 2006 to 2015. Descriptive statistics and correlation analysis were used, with random and fixed effects applied to regression using E-views software. The findings indicated that interest rate risk had a significant positive relationship with financial performance. However, the study did not take into account emerging issues such as inflation, equity, and political stability, which could have an impact on banks' financial performance. Operational risk factors identified by Basel II, as well as other non-financial factors such as ownership structure, physical location, and customer count, should have been considered moderating variables in the study.

Al-Slehat (2022) examined how interest rate risk affects the financial performance of Jordan's banking sector. The study population consisted of 13 Jordanian commercial banks from 2011 to 2018, with descriptive and analytical approaches used. Secondary data from the consolidated financial statements of Jordan Central Bank was used. The findings revealed that the level of banking security has a partial impact on the relationship between interest rate risk and financial performance. The study recommended that policymakers, bank owners, and managers continue to develop efficient interest rate risk policies while also strengthening the banking sector's monetary and financial policies. The study's findings may not be applicable to other emerging markets with different economic and political conditions, interest rate risk regimes, and levels of financial development, as they did not account for variables such as liquidity risk and credit risk. Chaudron (2018) used confidential secondary data obtained from the Dutch banking supervision to investigate the interest rate risk position of Dutch banks in their banking books between 2008 and 2015. The study used a descriptive research design with a panel data analysis. The findings suggested that banks significantly reduce their interest rate risk as the yield curve flattens. Interest rate risk was negatively related to on-balance-sheet leverage and had a U-shaped relationship with solvability in banks that did not use derivatives. Banks that received government assistance during the financial crisis had higher interest rate risk than banks that did not receive assistance, implying that there was a significant relationship between interest rate risk and the banking book, and thus financial performance. However, due to limited hedging of interest rate risks, the income from maturity transformation had a low net interest margin and return on assets.

Odeke and Odongo (2014) examined the relationship between interest rate risk exposure and commercial banks' financial performance in Uganda. A descriptive research design was used, and secondary data was collected from a sample of nine commercial banks. The data was then analyzed

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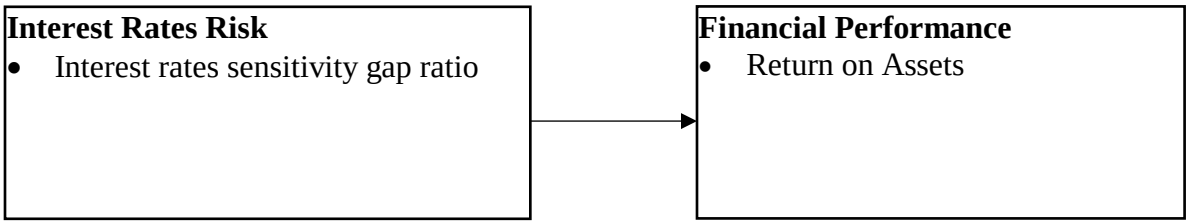
and interpreted using DuPont financial ratios. According to the findings, all commercial banks' performance varied by up to 14.9% due to a combination of maturity gaps, basis risk, and assets and liabilities margins. The overall analysis of interest rate risk exposure and bank performance revealed a generally positive relationship. Ugandan banks faced challenges with non-performing assets due to inaccurate client information, incorrect clients, and weak financial system controls. Therefore, relying solely on nine sampled banks may result in less than satisfactory and accurate results.

2.3 Conceptual Framework

The independent variable interest rate risk was used to drive this study. Financial performance was the dependent variable.



3.0 Research Methodology

This study's research methodology outlines the approaches used to design, collect data, and analyze the effects of systematic risk on the financial performance of Kenyan commercial banks. Using a descriptive research approach, the study sought to provide a detailed foundation for future investigation. The population included all 39 commercial banks regulated by the Central Bank of Kenya as of December 31, 2022, and data was collected from the entire population using a census method. Secondary data was collected from financial reports by the Central Bank of Kenya's Banking Supervision Unit and the Kenya National Bureau of Statistics (KNBS), with a focus on metrics such as return on assets, foreign exchange risks, interest rate risk, and consumer price index. Before beginning data collection, an introduction letter was obtained from Jomo Kenyatta University of Science and Technology. Data was processed and analyzed using descriptive and inferential statistical tools, such as correlation and panel regression analysis, and the results are presented in tables and figures. The analytical model used was intended to estimate the effects of systematic risk on financial performance, as expressed by a panel regression equation.

4.0 Research Findings and Discussions

Table 1:Descriptive Statistics

Statistics	N	Min	Max	Mean	Sd	Skewness	Kurtosis
Interest rate risk	180	0.0072	0.227886	0.174677	0.032572	-0.15359	5.054793
Financial Performance	180	-2.52315	1.029552	0.054051	0.32689	-1.13518	5.08278

The descriptive statistics for interest rate risk, calculated as the ratio of interest rate sensitive assets to interest rate sensitive liabilities divided by total assets, revealed significant insights. Interest rate

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risk statistics from Kenyan commercial banks shed light on its distribution and variability. The range of interest rate risk is 0.0072 to 0.227886, indicating a variety of risk levels across the sector. The average interest rate risk value of 0.174677 indicates that commercial banks have a moderate level of exposure to interest rate risk. The standard deviation of 0.032572 around this mean indicates that risk levels vary between banks, with values deviating from the mean to varying degrees.

4.1 Financial Performance

The descriptive statistics for financial performance, as measured by return on assets (ROA), provide insight into its distribution. The ROA values ranged from -2.52315 to 1.029552, with an average of 0.054051 and a standard deviation of 0.32689. The skewness of -1.13518 indicates a moderate leftward skew in the distribution, whereas the kurtosis of 5.08278 indicates a distribution that is slightly peaked when compared to a normal distribution, but still within acceptable limits. Overall, these values indicate that the data for financial performance (ROA) has an approximately normal distribution pattern. The normal distribution characteristics imply that the variations in financial performance observed during the specified time period were within expected limits, with no significant deviations from normality.

4.2 Correlation Analysis

Correlation Analysis, a statistical technique, is employed to discern relationships among variables within a dataset, gauging the strength of these associations. As stated by Muriithi (2016), it serves to identify patterns within datasets. A positive correlation signifies a simultaneous increase in both variables, whereas a negative correlation denotes an inverse relationship, with one variable decreasing as the other rises. Correlation coefficients ranging from +0.5 to +1 indicate robust positive correlations, while those from -0.5 to -1 denote strong negative correlations, elucidating proportional changes between variables.

Table 2: Pearson Correlation Analysis

	Financial performance	Interest Rates Risk
Financial Performance	1	-0.521
Interest Rates Risk	-0.521	1
	0.000	

The results indicate the correlation between interest rate risk and financial performance in line with the second objective. The correlation analysis reveals a strong negative relationship between the financial performance of commercial banks in Kenya and interest rate risk, with a correlation coefficient (r) of -0. 521.The P value of 0.000, ($P < 0.05$) suggest that an increase in interest rate risk leads to a corresponding significant decrease in the financial performance of commercial banks in Kenya.

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4.3 Panel Regression Analysis

Panel regression analysis is a powerful econometric technique for analyzing data collected over multiple time periods and across different entities, such as businesses or banks. Panel regression analysis provides a comprehensive approach to examining the dynamic relationship between interest rate risk and financial performance of Kenyan commercial banks over time while controlling for individual bank-specific characteristics. Panel data allows for the inclusion of both time-invariant (cross-sectional variation) and time-varying variables (time-series variation), which increases the analysis's robustness. The coefficient of determination (r2) was used to estimate the magnitude of these changes.

Table 3: Model Summary and ANOVA Regression Model

Fixed effects (within) regression		Number of obs =	180
Group variable: BANKS		Number of groups =	36
Rsq:		Obs per group:	
within = 0.8281		min =	5
between = 0.0003		avg =	5
overall = 0.6130		max =	5
corr(u_i, Xb) =	0.1005 (assumed)	F(4,178)=	7.08
		Prob > F=	0.000

The overall R^2 of 0.6130 indicated that 61.30% of interest rates risk explains the performance of commercial banks in Kenya. From the findings of the fixed effect model, we can therefore conclude that, when all other factors remain constant, 61.30% of s interest rates risk explain the variations of performance of commercial banks in Kenya. This suggests that a considerable portion of the variability in financial performance can be attributed to fluctuations in interest rates risk. However, it's noteworthy that the remaining 38.70% of the variation in financial performance is not accounted for by interest rates risk, implying that other factors outside the scope of the study model play a significant role in influencing banks' performance.

4.4 The Optimal Model

The panel regression analysis among dependent and the independent variables was carried out to establish the effects of interest rates risk and financial performance of commercial banks in Kenya.

Table 4: Fixed Effect Model Regression Coefficient

Financial Performance	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf. Interval]**	
Interest Rate Risk	-0.8759	0.165228	-5.30	0.000	-1.19974	-0.55206
_cons	6.90727	0.831917	-8.30	0.000	-8.53779	-5.27674
sigma	2.158201					
sigma	0.304275					
Rho	0.980511					

The constant value is 6.90727 with a p-value = 0.000. This implies that when the four independent variable is held at zero (0), financial performance of commercial banks in Kenya will be 6.90727

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units which is significant. The coefficient for interest rate risk is reported as -0.8759, with a statistically significant p-value. This suggests that interest rate risk is a good predictor of financial performance of commercial banks in Kenya. The interpretation of this coefficient is that for every unit increase in interest rate risk, the financial performance of commercial banks in Kenya is expected to decrease by 0.8759 units. Since the p-value of 0.000 associated with interest rate risk is less than 0.05, it indicates that this relationship is statistically significant at conventional levels of significance. In other words, the observed negative relationship between interest rate risk and financial performance of commercial banks in Kenya is unlikely to have occurred by chance. Instead, it suggests a meaningful and reliable association, where higher levels of interest rate risk are associated with lower financial performance of commercial banks, hence, interest rate risk is an important determinant of the financial performance of commercial banks in Kenya.

The following model was derived.

$$Y_{it} = 6.90727 - 0.8759IR_{it} \quad \text{---------- Equation 4.1}$$

Where;

Y_{it} represents the financial performance

IR_{it} represents interest rate risk

it represents individual firm i at time t

5.0 Conclusions

Interest rate risk, as measured by Interest Rate Sensitive Assets, Interest Rate Sensitive Liabilities, and Total Assets, was found to be negatively correlated with the financial performance of Kenyan commercial banks. The regression model supports this relationship further, revealing a negative coefficient for interest rate risk. As a result, an increase in interest rate risk has a negative impact on the financial performance of Kenya's commercial banks. These findings highlight the importance of effectively managing interest rate risk in the banking sector through proactive hedging by building and maintaining a diversified portfolio of bonds and equities to ensure profitability and stability. The study found that interest rate risk had a significant negative impact on the financial performance of Kenya's commercial banks. Thus, the study rejected the null hypothesis that interest rate risk has no significant effect on the financial performance of Kenya's commercial banks. The study concluded that higher interest rates had a negative impact on the financial performance of Kenya's commercial banks. Commercial banks derive a significant portion of their revenue from the difference between interest income generated by assets and investments and interest expenses paid on deposits and borrowings. When interest rates rise, the cost of funds typically rises faster than asset yields, reducing net interest margins. This can reduce net interest income, which has a negative impact on financial performance.

6.0 Recommendations of the Study

The study also recommends that banks automate their interest rate risk management. Commercial banks should implement modern management information systems and automated data management procedures capable of quickly converting data into reliable resources and loading them into the general ledger. Real-time data collection can significantly improve the accuracy of banks' assessments and data on interest rate risk. As a final measure, banks should have a well-documented contingency funding strategy. This ensures that they have enough alternative sources

of capital to cover losses due to unforeseen threats. Banks should regularly update it to reflect current economic conditions. The study sought to illuminate the impact of interest rate risk on commercial banks' financial performance. However, the study's scope allowed for further investigation into other systematic risk factors, particularly market risk, which could provide new insights into the dynamics of bank performance. Further, while the study examined the performance of commercial banks, it failed to consider the potential impact of interest rate risk on other financial institutions, such as microfinance banks. Expanding future research to include a broader range of financial institutions and timeframes would provide a more complete picture of the interest rate risk landscape in Kenya's banking industry.

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