

INFLUENCE OF CENTRAL BANK RATE (CBR) AND BANK COMMISSIONS ON LOANS AS A NON-INTEREST INCOME ON FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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Abstract: *This study investigates the influence of the Central Bank Rate (CBR) and bank commissions on loans, a form of non-interest income, on the financial performance of commercial banks listed on the Nairobi Securities Exchange (NSE). The research is anchored in the importance of commercial banks to the Kenyan economy and their role as major transmitters of monetary policy. Using a cross-sectional survey design and analyzing data from 2000 to 2021, the study employs regression analysis to explore the relationship between CBR, loan commissions, and bank performance. The results reveal a significant positive correlation between the CBR and bank commissions on financial performance, with a model explaining up to 73.3% of the variance. Specifically, the findings indicate that a unit increase in bank commissions results in a 0.681 unit increase in financial performance, while CBR variations cause substantial impacts, highlighting the importance of both interest and non-interest income sources. The study concludes that optimizing these variables can significantly enhance the financial stability and growth of Kenya's banking sector.*

Keywords: Bank Commissions, Central Bank Rate, Nairobi Securities Exchange, Non-Interest Income

1. INTRODUCTION

The banking sector is an integral part of the economy and is one of its major drivers. The banking sector is among the sectors under the financial services that is expected to contribute greatly to the realization of Kenya's Vision 2030 (Republic of Kenya, 2007). An efficient banking sector contributes positively to economic development by promoting capital accumulation through supply of credit. The sector mobilizes and allocates savings, supports trade, helps in diversification and hedging of risk, and contributes to overall economic growth of a country through provision of credit to the private sector (Levin, 1997). For this sector to continue providing these services, it must be stable and be able to make profits from their operations. Besides, the commercial banks are the major transmitters of monetary policies implemented by the Central Bank in the economy (Siddiqui and Shoaib, 2011). With these roles, analyzing the determinants of their profitability is essential and important to the growth of this sector and stability of the economy.

The financial performance of commercial banks is a critical area of study, particularly in emerging markets such as Kenya, where the dynamics of banking operations are influenced by various factors, including central bank policies and non-interest income sources. This journal article aims to explore the influence of the Central Bank Rate (CBR) and bank commissions on loans as a form of non-interest income, specifically focusing on

commercial banks listed on the Nairobi Securities Exchange (NSE). The significance of this research lies in its potential to elucidate how monetary policy and banking fees impact the financial viability and operational strategies of these institutions.

The Central Bank Rate serves as a benchmark for interest rates in the economy, directly affecting the lending rates of commercial banks and, consequently, their profitability. Previous studies have established a link between monetary policy and the financial performance of banks, indicating that fluctuations in the CBR can lead to significant changes in loan repayment rates and overall bank profitability (Meshack & Nyamute, 2017). Moreover, the role of bank commissions, which constitute a substantial part of non-interest income, cannot be overlooked. These commissions are derived from various banking services, including loan processing fees and account maintenance charges, and are essential for enhancing the financial performance of banks (Ayodi et al., 2022; Njenga et al., 2020).

Furthermore, the interplay between CBR, bank commissions, and financial performance is underscored by the competitive landscape of the banking sector in Kenya. As banks strive to maintain profitability amidst regulatory changes and economic fluctuations, understanding how these factors influence their financial metrics becomes imperative. Research has shown that effective management of non-interest income sources, such as commissions, can significantly bolster a bank's financial stability and market value (Ayako & Wamalwa, 2015).

Study objective

The main objective of the study was to analyze the influence of interest rates, non-interest income and hedging on the financial performance with a specific objective to establish the influence of Central Bank Rate (CBR) and bank commissions on loans as a non-interest income on financial performance of commercial banks listed at the Nairobi Securities Exchange.

The following null hypothesis was used in the study;

H01. There is no significant influence of Central Bank Rate (CBR) and bank commissions on loans as a non-interest income on financial performance of commercial banks listed at the Nairobi Securities Exchange.

Problem statement

The financial performance of commercial banks is increasingly scrutinized in the context of evolving economic conditions and regulatory frameworks. In Kenya, the Central Bank Rate (CBR) and bank commissions on loans represent critical factors influencing the profitability and operational strategies of commercial banks listed on the Nairobi Securities Exchange (NSE). Despite the growing body of literature on the determinants of bank performance, there remains a notable gap in understanding how these specific variables interact to shape financial outcomes in the Kenyan banking sector.

The CBR, as a tool of monetary policy, directly influences interest rates and, by extension, the cost of borrowing for consumers and businesses. Changes in the CBR can lead to significant fluctuations in loan demand and repayment rates, which are crucial for banks' interest income (Nyamita & Dima, 2021; Meshack & Nyamute, 2017). Additionally, bank commissions, which are a vital source of non-interest income, play a pivotal role in enhancing overall profitability. However, the relationship between these commissions and financial performance is complex and may vary based on the competitive landscape and regulatory environment (Mwangi et al., 2022).

Moreover, the interplay between CBR and bank commissions can create a nuanced impact on the financial stability of banks. For instance, while higher commissions may bolster non-interest income, they could also deter potential borrowers, thereby affecting loan volumes and overall profitability (Williams & Prather, 2010). This duality underscores the importance of a comprehensive analysis that considers both the direct and indirect effects of these factors on financial performance.

Furthermore, the existing literature indicates that income diversification, including non-interest income from commissions, is positively correlated with bank performance (Sharma & Anand, 2018; , Nisar et al., 2018). However, excessive reliance on non-interest income can introduce volatility and risk, complicating the financial landscape for banks (Mwangi et al., 2022; , Rasyid, 2023). Thus, understanding the balance between interest income and non-interest income, particularly in the context of CBR fluctuations, is essential for formulating effective strategies that enhance financial performance.

In summary, this study seeks to address the critical gap in understanding the influence of the Central Bank Rate and bank commissions on the financial performance of commercial banks listed at the Nairobi Securities Exchange. By examining these relationships, the research aims to provide valuable insights for banking practitioners and policymakers, ultimately contributing to the stability and growth of the Kenyan banking sector.

2. RESEARCH METHODOLOGY

The The study was grounded in a positivist research philosophy, which views reality as objective, stable, and independent of the researcher. According to positivism, knowledge is only valid if it is based on observable facts that can be measured and quantified. The approach emphasizes deductive reasoning, where hypotheses are developed from existing theories and tested empirically. The positivist stance is characterized by quantitative methods, including surveys and statistical analysis, which focus on collecting numerical data to describe and explain social realities. In this study, the positivist paradigm was chosen due to its focus on hypothesis testing and its reliance on statistical procedures to assess relationships between variables, such as CBR, loan commissions, and financial performance.

Study Area

The research was conducted in Nairobi, Kenya, where the headquarters of most commercial banks are located. Nairobi was selected as the study area because it is the financial hub of Kenya, hosting the central operations of the commercial banks listed on the NSE. The offices of the commercial banks provided the necessary data for the study.

Research Design

The study adopted a cross-sectional survey research design, which is commonly used to determine relationships between variables at a specific point in time. This design was deemed appropriate as it allowed the researcher to investigate whether a relationship exists between the CBR, bank commissions, and financial performance of the listed commercial banks. A cross-sectional design was chosen to provide a snapshot of the variables' interactions within a defined period and to examine how the financial performance of the banks is influenced by the key variables under investigation.

This design also aligns with prior studies on financial performance and its determinants (Mugenda & Mugenda, 2003; Cooper & Schindler, 2003). It serves as a blueprint for data collection, measurement, and analysis, guiding the researcher in connecting the study's objectives with the data gathered.

Target Population

The target population for this study comprised the 11 commercial banks listed on the Nairobi Securities Exchange (NSE), as reported by the NSE in 2022. The target population refers to the group of entities from which the researcher seeks to generalize the study's findings (Kothari, 2004). Due to the small size of the population, a census approach was adopted, meaning all 11 banks were included in the study. This approach was considered appropriate as it allowed the researcher to comprehensively assess the entire population without the need for sampling.

Data Collection Procedure and Research Instruments

The study relied on secondary data, which was obtained from both individual bank financial statements and the Central Bank of Kenya's (CBK) database. Data on the financial performance of the listed commercial banks was sourced from their audited financial statements, while information on the CBR, repo rate, and interbank rate was extracted from the CBK website. The study period covered the years 2000 to 2021, providing a comprehensive dataset that spanned over two decades.

The use of secondary data is well-suited for examining historical trends in financial performance and the influence of macroeconomic variables, as it allows for the analysis of already-existing data. This data was supplemented by information from other sources such as the Capital Markets Authority, scholarly journals, and relevant newspapers to ensure accuracy and completeness.

Validity and Reliability of Research Data

To ensure the validity of the data, the study followed a thorough and logical evaluation process. Validity refers to the extent to which the research instrument measures what it is intended to measure (Ogula, 1998). The data collection guide was subjected to peer and expert reviews to ensure that the variables were accurately captured and that the data was relevant to the study objectives.

Reliability refers to the consistency of the research findings if the same data collection methods were used repeatedly. A research instrument is considered reliable if it produces consistent results over repeated trials (Mugenda & Mugenda, 2003). In this study, reliability was ensured by using standardized secondary data sources such as audited financial statements and official central bank data, which are recognized for their accuracy and consistency.

Data Analysis and Presentation

Once the data was collected, it was analyzed using the Statistical Package for Social Sciences (SPSS). Descriptive statistics such as means and standard deviations were calculated to summarize the data. Additionally, the data was presented using graphs, tables, percentages to enhance clarity and understanding.

To investigate the relationships between the variables, correlation analysis and regression analysis were employed. The correlation analysis helped to identify the strength and direction of relationships between variables such as the CBR, loan commissions, and financial performance. Regression analysis was used to

assess whether a linear relationship existed between these variables, allowing the researcher to determine the size and significance of these relationships.

The regression model also allowed for the inclusion of additional variables to test whether the relationships held constant, thus providing a more robust analysis. The results of the regression analysis were evaluated at a 95% confidence level, ensuring that the findings could be generalized to the broader population of listed commercial banks.

3. RESULTS AND DISCUSSION

This section presents the analysis, interpretation and discussion of results generated from data collected from the field and presentations done.

Descriptive Statistics

The study established the descriptive statistics of the data used. A normality test determines whether a sample data has been drawn from a normally distributed population. It is generally performed to verify whether the data involved in the research have a normal distribution. The values in this study were normalized using the natural logarithms (Ln) of the large figures obtained from the field for easy analysis and interpretation. The standard deviation, skewness and kurtosis of the variables results are shown in table 1.

Table 1: Descriptive Statistics: Testing for Normality of Variables

	Mini.	Maxi.	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic
LnX₁	.01035	.09910	.0216247	.01428358	3.705	16.287
ROA	.02017	.02875	.0237577	.00205199	.053	-.750

The results in table 1 indicate that the natural logarithms (Ln) of X₁ (CBR*NII) commission on loans income product with the central bank rate had a standard deviation of .01428358 with skewness statistic of 3.705 and kurtosis statistic of 16.287. This variable has the highest values of skewness and kurtosis. This variable shows Cauchy distribution which is symmetric with heavy tails and a single peak at the center of the distribution.

Further, return on assets (ROA) ratio had standard deviation of 0.00205199 with skewness and kurtosis statistic of 0.053 and -0.750 respectively indicating also a normal distribution of the data. The standard deviations of individual variable values are not very high but are around the mean statistic of the variable construct.

Diagnostic Tests

Before the regression model results were obtained post estimation analysis and pre estimation analysis tests were performed. The pre-estimation analysis tests performed include the unit root tests and multicollinearity. The post estimation analysis tests include the normality test, test for test for autocorrelation and heteroskedasticity. This helps to avoid spurious regression results from occurring.

Test for Multicollinearity

According to William et al., (2013), multicollinearity occurs when there is correlations presence among the predictors. In some cases of perfect correlations among the predictor variables, multicollinearity may imply that unique least squares solution should not be computed to a regression analysis (Field, 2009). Multicollinearity increases the confidence intervals and standard errors which may lead to estimates that are unstable of the coefficients for the individual predictors.

Table 2: Test for Multicollinearity using VIF

Model	Collinearity Statistics	
	Tolerance	VIF
(Constant)		
1 Central Bank Rates	.477	2.098
Bank Commissions on Loans	.477	2.098

The results in table 2 show that the Variance Inflation factor values (VIF = 2.098) in this study are below 10 and therefore severe multicollinearity does not exist.

The study used multiple regression model as outlined below;

$$Y_1 = \beta_0 + \beta_1 X_{1it} + \beta_{11} IBR_{it} + \beta_{12} RIS-HEDG_{jt} + \varepsilon \dots\dots\dots (1)$$

Where:

Y= Dependent Variable (financial Performance- Volume of EAITBDA).

X₁= Volume of Commissions on Loans

CBR_i= Central bank rates (over time t= 1, 2, ...n)

RIS-HEDG_j = Hedging Mitigation (Risk estimation Metrics) over time j= 1, 2, ...n)

β₀, β₁, β₁₁ are regression equation coefficients

ε = error term of the regression

Table 3: Test for Multicollinearity using VIF

Model		Collinearity Statistics	
		Tolerance	VIF
(Constant)			
1	X ₁	.049	20.227
	CBR* RIS-HEDG	.160	6.265

The VIF value is an index which measures how much variance of an estimated regression coefficient is increased. Rule of Thumb is applied in this study: If any of the determined VIF values exceeds 10, it implies that the associated regression coefficients are poorly estimated and multicollinearity exist (Montgomery, 2001; Murphy and Myers, 1998). Variance inflation factor is used to measure how much the variance of the estimated regression coefficient is inflated if the independent variables are correlated. The value of VIF =1 indicates that the independent variables are not correlated to each other. If the value of VIF is $1 < VIF < 5$, it specifies that the variables are moderately correlated to each other. The challenging value of VIF is between 5 to 10 as it specifies the highly correlated variables. If $VIF \geq 5$ to 10, there will be multicollinearity among the predictors in the regression model and $VIF > 10$ indicate the regression coefficients are feebly estimated with the presence of multicollinearity.

Central Bank Rates, Bank Commissions on Loans Income, Hedging and Financial Performance of Banks listed at the Nairobi Securities Exchange

The study establishes the influence of Central Bank Rate on the relationship between bank commissions on loans income and financial performance of commercial banks listed at the Nairobi Securities Exchange. The results in table 4 reveal that a strong and positive association with a significant relationship exist between the central bank rates, commission on loans and financial performance of the banks ($R = .874^a$, $R^2 = .764$, $p < .005$); these variables explained up to 76.4% of the variation in banks financial performance.

Table 4: Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics			Durbin-Watson
					R Square Change	F Change	Sig. F Change	
1	.874 ^a	.764	.733	104919510.86	.764	24.336	.000	1.786

a. Predictors: (Constant), Bank Commissions on Loans, Central Bank Rates

b. Dependent Variable: Performance

The study established the fitness of the variables in the model used in this study was up to 73.3% (adjusted $R^2 = .733$; $F = 24.336$, $P = .000^b$). This results in table 4 indicate that the model can be relied on up to 73.3% in predicting financial performance of the banks.

This study results concur with findings of Chiorrazzo et al., (2008) study on the link between non-interest revenues and profitability using data from a sample of Italian banks for the period 1993 to 2003. There is evidence that income diversification increases risk-adjusted returns. In addition, the findings also indicate that there are limits to the diversification gains which can be achieved as banks get larger. Additionally, results showed that small banks can make gains from increasing non-interest income, but this is premised on these institutions having an initially low non-interest income share.

The findings in this study concurs with past studies on interest rate which is the price a borrower pays for the use of money they borrow from lender or financial institutions or fee paid on borrowed assets (Crowley, 2007). Theoretically, there exist a relationship between inflation, central bank rate and the profitability of firms, since inflation can influence the central bank rate which directly influences the cost of capital and the return on savings. A change in interest rate affects the debt equity choice of a firm; Hualan (1992) found that interest rate is one of the most important factors that affect the overall bank financial performance. Interest rates are major economic factors that influence the economic growth in an economy. Corb (2012) study argued that interest rate is an economic tool used by Central Bank of Kenya (CBK) to control inflation and to boost economic development, the rationale behind the need to control interest charged on credit or any financial instruments is based on the need to control economic patterns that has great effects to the entire economy. Howells (2008) study reveal that increase in interest rates makes savings from current income more attractive, increases repayment of existing floating -rate debt and thus lowering disposable income, with possible loan default; increases the cost of goods obtained on credit; lowers the prices of financial assets and hence influence estimates of private sectors wealth and lowers house prices.

Table 5: ANOVA^a

Model	Sum of Squares	Mean Square	F	Sig.
1 Regression	535782606513570880.000	267891303256785440.000	24.336	.000 ^b
Residual	165121556409725344.000	11008103760648356.000		
Total	700904162923296260.000			

a. Dependent Variable: Performance

b. Predictors: (Constant), Bank Commissions on Loans, Central Bank Rates

ANOVA is an analysis tool used in statistics that splits an observed aggregate variability found inside a data set into two parts: systematic factors and random factors. The systematic factors have a statistical influence on the given data set, while the random factors do not. The F value ($F= 24.336$) is used in analysis of variance (ANOVA). It is calculated by dividing two mean squares. This calculation determines the ratio of explained variance to unexplained variance. The F distribution is a theoretical distribution. The F-statistic is simply a

ratio of two variances. Variances are a measure of dispersion, or how far the data are scattered from the mean. Larger values represent greater dispersion.

The results in table 6 indicate that bank commissions on loans unit increase causes 0.671 unit increase in banks financial performance. While central bank rates unit increase causes 90679092.591 increase in financial performance of banks.

Table 6: Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.	Collinearity Statistics	
	B	Std. Error				Beta	Tolerance
(Constant)	518289032.827	274283131.149		-1.890	.078		
1 Central Bank Rates	90679092.591	31598886.114	.521	2.870	.012	.477	2.098
Bank Commissions on Loans	.671	.290	.420	2.315	.035	.477	2.098

Substituting the coefficients in the model:

$$Y_1 = \beta_0 + \beta_1 X_1 + \beta_{11} CBR_i + \varepsilon \dots\dots\dots (2)$$

the results reveal that $Y_1 = 518289032.827 + .671X_1 + 90679092.591CBR_i$

The coefficients indicate the nature of association of the variable in the model. Further t-test on the degree of significance of the variables was applied. This aimed at testing for the degree of significance of regression coefficients b_0 , b_1 , and b_{11} , relating to independent variables towards banks financial performance. For the constant $b_0 = -518289032.827$; $T_0 = -1.890$, the p values ($p = 0.078 > 0.05$) reject H_0 and conclude that $b_0 = -518289032.827$ is not significantly different from zero. For bank commissions on loans its $b_1 = -0.671$; $T_1 = 2.315 >$ critical value (1.734064), $p = 0.035 < 0.05$: the study rejects H_0 and conclude that b_1 is significantly different from zero and is statistically significant, therefore effect of bank commissions on loans on the banks financial performance was not zero. For central bank rates its $b_{11} = 90679092.591$; $T_{11} = 2.870 >$ critical value (1.734064), $p = 0.012 < 0.05$: the study rejects H_0 and conclude that b_{11} is significantly different from zero and is statistically significant, therefore effect of central bank rates on the banks financial performance was not zero. Therefore, the study rejected the Null Hypothesis stated as: There is no significant effect of Central Bank Rate (CBR) on the relationship between bank commissions on loans income and financial performance of commercial banks listed at the Nairobi Securities Exchange. The variable central bank rate was statistically significant.

The VIF value is an index which measures how much variance of an estimated regression coefficient is increased. Rule of Thumb is applied in this study: If any of the determined VIF values exceeds 10, it implies

that the associated regression coefficients are poorly estimated and multicollinearity exist (Montgomery, 2001; Murphy and Myers, 1998). Therefore this multicollinearity is deemed not severe to interfere with the relationship between independent variables and dependent variable if the VIF values fall within the expected ranges. The VIF values ($VIF = 2.098$) in this study are below 10 and therefore severe multicollinearity does not exist. These results concur with past studies; there is widespread empirical support that lower interest rates are associated with a decline in banks' net income margin. However, there is less agreement on the impact of monetary policy on overall bank profitability as well as the impact of negative rates. Starting with the impact on banks' interest margins, several studies identify a nonlinear relationship between interest rates and net income margin, with the marginal impact of a cut to the cash rate larger in low interest rate environments (Borio et al (2017). A prolonged period of low rates is also found by several studies to have a larger negative effect on margins than a relatively short period (Claessens et al,2018). While studies by Genay and Podjasek (2014) and Bikker and Vervliet (2018) both find that interest rates have a negligible effect on banks' profitability, mainly because higher fees and lower LLPs offset downward pressure on net income margins.

The study further analyzed the relationship between the Central Bank Rates, bank Commissions on loans income, hedging and financial performance of Commercial banks listed at NSE.

Table 7: Model Summary^b

Model	R	R Square	Adjusted R Square	Change Statistics	
				R Change	Sig. F Change
1	.734 ^a	.539	.533	.533	.000

a. Predictors: (Constant), Bank Commissions on Loans, Central Bank Rate-Hedging

b. Dependent Variable: Financial Performance

The result in table 7 show that ($R = .734^a$) there exist a strong association between the explanatory variables and the dependent variable (financial performance of banks). The variables can explain up to 53.9% variation in financial performance of commercial banks ($R^2 = .539$). Generally, a higher r-squared indicates more variability is explained by the model. However, it doesn't tell whether the chosen model is good or bad, nor will it tell whether the data and predictions are biased. A high or low R-squared isn't necessarily good or bad it doesn't convey the reliability of the model or whether you've chosen the right regression. These variables are reliable in the prediction of financial performance up to 53.3% (Adjusted $R^2 = .533$) and their influence on financial performance is statistically significant ($p = .000$). Adjusted R-squared is a modified version of R-squared that has been adjusted for the number of predictors in the model. The adjusted R-squared increases when the new term improves the model more than would be expected by chance. It decreases when a predictor improves the model by less than expected.

Table 8: Coefficients^a

Model	Unstandardized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	828903.66	.008	-	8.292	.000
Bank Commissions on Loans (X_{lit})	.681	.017	.556	4.003	.000
Central Bank Rates* Hedging (CBR_{it} RIS-HEDG_{jt})	.957	.000	.849	15.882	.000

a. Dependent Variable: Financial Performance

The regression model below was adopted.

$$Y_1 = \beta_0 + \beta_1 X_{lit} + \beta_{11} CBR_{it} \text{ RIS-HEDG}_{jt} + \varepsilon \dots\dots\dots (1)$$

Substituting the coefficients in table 8 to the regression model 1 it changes to

$$Y_1 = 828903.66 + 0.681 X_{lit} + 0.957 CBR_{it} \text{ RIS-HEDG}_{jt}$$

The result in the model indicate that a unit change in bank commissions on loans results in 0.681 units change in financial performance of commercial banks. While the unit change in central bank rates and hedging components causes 0.957 units change in financial performance of commercial banks. This result reveal that CBK rates and hedging when optimized in application in this sector the financial performance improves significantly.

The coefficients indicate the nature of association of the variable in the model. Further t-test on the degree of significance of the variables was applied. This aimed at testing for the degree of significance of regression coefficients b_0 , b_1 , and b_{11} , relating to independent variables towards banks financial performance. For the constant $b_0 = .660$; $T_0 = 8.292$, the p values ($p = 0.000 < 0.05$) reject H_0 and conclude that $b_0 = .660$ is not significantly different from zero. For bank commissions on loans its $b_1 = .681$; $T_1 = 4.003 >$ critical value (1.734064), $p = 0.000 < 0.05$: the study concludes that b_1 is significantly different from zero and is statistically significant, therefore influence of bank commissions on loans on the banks financial performance was not zero. For central bank rates, hedging its $b_{11} = .957$; $T_{11} = 15.882 >$ critical value (1.734064), $p = 0.000 < 0.05$: the study concludes that b_{11} is significantly different from zero and is statistically significant, therefore influence of central bank rates-Hedging on the banks financial performance was not zero. Therefore, the study rejected the Null Hypothesis stated as: There is no significant relationship between of Central Bank Rate- hedging, bank commissions on loans income and financial performance of commercial banks listed at the Nairobi Securities Exchange. These variables were therefore statistically significant.

This findings concurs with study by Nimalathan, B., and Pratheepkanth, P.(2012) in their topic impact of systematic risk on profitability of selected financial institutions in Sri-Lanka from year 2007 to 2011. In their research, systematic risk was measured. The research used derived statistics. Prepared hypothesis was

conducted and the findings showed systematic hazard have optimistic relationship ($r=0.755$; $P =.000<0.05$). The study findings showed that systematic risk is improved by Degree of Financial Leverage and Degree of Operating Leverage in the preferred financial institutions where the beneficial impact is observed on productivity.

Among risk mitigating strategy that is commonly used by firms is hedging. Hedging reduces the risk of future price movements which might affect a firm adversely if not well managed (Horne & Wachowicz, 2012). Hedging is done by a firm or individual to protect against a price change that would otherwise negatively affect profits (Brigham & Ehrhardt, 2014). It provides relatively inexpensive and highly liquid positions similar to those obtained with diversified stock portfolios (Sharpe, Alexander & Bailey 2013). To hedge a firm can use a wide range of financial instruments, including forward agreements, futures contracts, options or swaps, to achieve their hedging goals. Bartram et al. (2011) on a survey of non-financial firms from 47 countries found out that the use of these instruments reduced firm’s total risk and is more experienced in firms with higher exposures to interest rate risks, exchange rate risks and commodity prices risks. In United States, 83% of hedging firms use forward agreements, futures contracts, options or swaps to hedge foreign exchange risk, 76% use them to hedge interest rate risk and 56% use them to hedge commodity price risk (Bodnaret al., 2008). It follows therefore that forward agreements, futures contracts, options and swaps are commonly used in hedging interest rate risks, foreign exchange risks, and commodity price risks. The study concurs with findings on the major source of financial risk like the issue of inflation. In the recent past Kenya has experienced one of the worst inflation instances since independence (CBK, 2023). This witnessed the stagnation of numerous projects and upward fluctuation of commodity prices such as oil. Further challenges are attributed to the global financial crisis, at the height of the crisis; economic cycles are particularly influenced by the macro-economic conditions. Business cycles often affect various economic units’ cash flows and the credit portfolio performance. To mitigate the effect of these risks Kenyan firms use a variety of hedging practices.

Summary of hypothesis testing

No	Null Hypothesis	Results
H ₀₁	There is no significant influence of Central Bank Rate (CBR) and bank commissions on loans as a non-interest income on financial performance of commercial banks listed at the Nairobi Securities Exchange.	Rejected

4. Summary of findings

The study established the influence of Central Bank Rate on the relationship between bank commissions on loans income and financial performance of commercial banks listed at the Nairobi Securities Exchange. The results on the fitness of the variables in the model used in this study was up to 73.3% (adjusted $R^2 = .733$; $F = 24.336$, $P = .000^b$). This results indicated that the model can be relied on up to 73.3% in predicting financial performance of the banks. The results indicated that bank commissions on loans unit increase causes 0.671 unit increase in banks financial performance. While central bank rates unit increase causes 90679092.591 increase in financial performance of banks. When the coefficients substituted in the model $Y_1 = \beta_0 + \beta_1X_1 + \beta_{11}CBR_i + \varepsilon$; the results reveal that $Y_1 = 518289032.827 + .671X_1 + 90679092.591CBR_i$.

The study further analyzed the relationship between the Central Bank Rates, bank Commissions on loans income, Hedging and financial performance of Commercial banks listed at NSE. The results showed that there exist a strong association between the explanatory variables and the dependent variable (financial performance of banks). The variables can explain up to 53.9% variation in financial performance of commercial banks ($R = .734^a$; $R^2 = .539$) and these variables were reliable in the prediction of financial performance up to 53.3% (Adjusted $R^2 = .533$) and their influence on financial performance is statistically significant ($p = .000$). The result in the model indicated that a unit change in bank commissions on loans results in 0.681 units change in financial performance of commercial banks. While the unit change in central bank rates and hedging components causes 0.957 units change in financial performance of commercial banks. This result reveal that CBK rates and hedging when optimized in application in this sector the financial performance improves significantly. The coefficients indicate the nature of association of the variable in the model. Further t-test on the degree of significance of the variables was applied. This aimed at testing for the degree of significance of regression coefficients b_0 , b_1 , and b_{11} , relating to independent variables towards banks financial performance. For the constant $b_0 = .660$; $T_0 = 8.292$, the p values ($p = 0.000 < 0.05$) reject H_0 and conclude that $b_0 = .660$ is not significantly different from zero. For bank commissions on loans its $b_1 = .681$; $T_1 = 4.003 >$ critical value (1.734064), $p = 0.000 < 0.05$: the study concludes that b_1 is significantly different from zero and is statistically significant, therefore influence of bank commissions on loans on the banks financial performance was not zero. For central bank rates-hedging its $b_{11} = .957$; $T_{11} = 15.882 >$ critical value (1.734064), $p = 0.000 < 0.05$: the study concludes that b_{11} is significantly different from zero and is statistically significant, therefore influence of central bank rates-Hedging on the banks financial performance was not zero. Therefore, the study rejected the Null Hypothesis stated as: There is no significant relationship between of Central Bank Rate, hedging, bank commissions on loans income and financial performance of commercial banks listed at the Nairobi Securities Exchange. These variables were therefore statistically significant in influencing financial performance of commercial banks listed at Nairobi Securities Exchange.

The study therefore has unraveled very novel knowledge in the banking sector. It has revealed that there is enormous improvement on the financial performance of commercial banks when the interest rates of CBK are optimized.

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