

GSJ: Volume 8, Issue 12, December 2020, Online: ISSN 2320-9186
www.globalscientificjournal.com

IMPACT OF INTEREST RATE VOLATILITY ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

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KeyWords

Interest rate, Consumer Price Index, Foreign Exchange, Gross Domestic Product, Inflation rate, Kenya National Bureau of Statistics, Nairobi Securities Exchange, Financial performance, Return on Assets, United State Dollars, Volatility

ABSTRACT

The general objective of this study was to determine the impact of interest rate volatility on the financial performance of commercial banks listed at the Nairobi Securities Exchange. The Efficient Market Hypothesis theories, the Keynes' Monetary Theory of Interest, were reviewed so as to support the variables used in this study. The research incorporated a ten-year period secondary data as of 2009 to 2018. The target population of study comprised the 11 banks trading at the NSE covering 10 years duration of scrutiny, hence making the overall units of analysis to be 110. The study incorporated census techniques in order to acquire data from the banks. Documents from the Kenya National Bureau of Statistics (KNBS), Central Bank of Kenya (CBK) as well as the NSE, were analyzed in order to attain the commercial banks' financial performance and Interest rate data. The study employed descriptive research design. Analysis of data was through quantitative techniques. Descriptive analysis generated descriptive statistics in form of mean, variance and standard deviation. Inferential analysis specifically correlation as well as the regression analysis were carried out. The coefficients generated from the Regression Analysis Model were employed so as to test the hypothesis. Correlation results depicted an inverse association amid interest rate against financial performance. Hypothesis testing at 95% level of significance established a significant impact on interest rate, with financial performance hence rejecting H01 (which stated that interest rate, has no significant impact on the financial performance of commercial banks listed the NSE). It was concluded that interest rate, fluctuations significantly affect the financial performance of commercial banks listed at the NSE, thus requiring a close monitoring. It was recommended that commercial banks ought to take full control of interest rates fluctuations, since they significantly affect their financial performance, and that that the interest rate should be determined mainly by the forces of demand and supply and not through imposing of interest rate capping. Finally, further studies were suggested.

1.1 INTRODUCTION

The banking industry is a fundamental component and a key player in any given economy (Muchiri, 2017). The existence of a robust, efficient and effective banking system is very imperative for economic expansion of a country (Emase, 2017). This is because it influences the life of many people and institutions through its numerous services

that the banking industry offer, which ranges from taking deposits, to giving out loans, mortgage processing and project financing, thus making them to be considered as the foundation of the economy (Emase, 2017).

It is comprehended that companies do not operate in a vacuum, the environment in which a firm undertakes its business transactions is surrounded by several factors that may influence and, or affect the outcome of the business venture (Mohammed, 2017). Otambo (2016) argues that several Macro-Economic factors, for instance Interest rate, Inflation rates, GDP fluctuations, as well as Exchange rates, play a fundamental role in shaping an economy. This is because they influence business activities undertaken in a given country (Otambo, 2016). A slight change in these macro-economic variables with uncalculated move by firms may be detrimental since it may affect their profitability (Mohammed, 2017). For instance, increase in loan interest rates offered by a lending institution may have a ripple effect on several stake-holders in the economy, such as an increase in the final consumer products manufactured by a firm which obtained a loan at higher interest rates (Chimkono, 2016).

It is further augmented that financial performance of any entity is a key factor towards depicting whether a company will continue with its operations or it may consider winding up, shedding light whether an investment project should be undertaken this current year or requiring postponing to the next fiscal year (Emase, 2017).

Otambo (2016) depicts that profitability, which is a key indicator of financial performance, is a significant pointer of industry performance and has profound implication on other sector undertakings. Financial performance is an autonomous evaluator of companies' efficient consumption of its resources to generate revenue in its primary business model, financial performance is fundamental in considering if an entity would be able to secure finances for its endeavors or not (Otambo, 2016). The same author further articulates that financial performance plays a significant role in determining whether share-holders will receive dividends and by how-much, even the adoption of a particular dividend policy peculiar to that firm. Otambo (2016) holds that financial performance of an institution aids in determining payment to its other stake-holders such as the company's creditors and management as well as monitoring the agency cost that comes with running the business, and finally outlining how the capital of the firm will be structured.

Thus, with this in mind, the financial performance of banks ought to be monitored intimately, and consequently, all the factors that affect it.

1.2 Statement of the Problem

Companies as well as individuals ought to be enlightened about the financial performance of the banking industry (Chimkono, 2016). This is in quest of enabling them plan and make informed decisions with regard to the investment options financed by the banks as well as being able to determine whether the bank will be able to pay dividends to the investors and other stake-holders or not (Emase, 2017). The major key indicator of organization's performance is its financial performance (Otambo, 2016). This is because financial performance measures the profitability, appreciations in value and the earning power of an organization as demonstrated by the increase in its share price (Mwangi, 2017). However, the banking sector's financial performance, similar to other industries in the economy is affected by an assortment of economic-wide factors such as the rate of interest, inflation, exchange, and GDP fluctuations (Chimkono, 2016).

Kenya as a country underwent significant changes over the last 10 years which affected the banking industries financial performance. For instance the public debt rose from 1.0 trillion in September 2009 to 5.1 trillion in September 2018 (CBK, 2019). This period witnessed a great volatility in the macro-economic variables for instance; the USD/KES mean Exchange rate deflected from KES 78.2678 in January 2009 to KES 101.8461 in December 2018 (CBK, 2019). In September 2016 the commercial bank lending Interest rate capping came into force, and the inflation rate rose by 114% between May 2016 and May 2017 (KNBS, 2020).

The above events affected the banking industry financial performance extensively, for instance Chase bank and Imperial bank went into receivership, National bank of Kenya closed most of its branches, CBA and NIC merged into NCBA, BBK changed into ABSA Bank and 90% of Jamii bora bank shares were acquired by Co-op bank (CBK, 2020). Emase (2017) maintains that high volatility in the macroeconomic variables (Inflation rates, Exchange rates, GDP and Interest rates) is a significant indicator of economic imbalance and a major concern to governments, investors, analysts, as well as other stake-holders. This is because it increases the improbability of employment, investment and saving, cash flows, profits, dividends, purchasing power and economic growth, thus leading to a reduction of the implementation of sustainable development projects. The volatility in the macro-economic variables, and the recent economic-wide instances witnessed in the country and in the banking industry over the last 10 years triggered this research study.

The recent studies reviewed in this research study, mainly focused on the relationship between these macro-economic variables and other industries such as the insurance industries (Mwangi, 2017), and the microfinance

(Njenga, 2019), among other sectors with insignificant focus on the banking industry, yet it is a key player in the economy of any given country. Thus there was a gap requiring a current study on these variables and the banking industry as well as a review on literature to the extent that this research study is concerned.

Therefore, this research sought to bridge the research gap as well as coming up with a current study which would be instrumental to governments, scholars and stake-holders in the banking industry by answering the question: "What is the Impact of the Interest Rate Volatility on the Financial Performance of Commercial Banks listed at the Nairobi Securities Exchange?"

1.3 Objectives of the study

To determine the impact of Interest rate volatility on the financial performance of commercial banks listed at the Nairobi Securities Exchange.

1.4 Research Hypothesis

H01: Interest rate volatility has no significant impact on the financial performance of commercial banks listed at the Nairobi Securities Exchange.

2.0 LITERATURE REVIEW

2.1 Efficient Market Hypothesis

Fama (1980) proposed that investors' competition to maximize their profit would make high profits earning impossible. This was among the prerequisites projects on Efficient Market Hypothesis (EMH). He went ahead and differentiated 3 circles of the EMH (Weak, Semi-strong and Strong one), and assumed that players in an economy have all necessary information in relation to actualities pertaining to all variations in macro-economic variables giving reflection in stock prices. Fama (1980) expounded that the fundamental of stock prices variability is occasioned by macro-economic factors such as Money supply in an economy, Inflation rate vicissitudes, as well as Exchange rate fluctuations. EMH facilitates in making inferences that variations in the macro-economic variables ultimately have consequences on the stock prices, which in turn distresses the financial performance of the entities operating at the stock market, as in this study, the Commercial Banks trading at the NSE.

2.2 The Keynes' Monetary Theory of Interest

It is augmented that interest rate determination has been a subject of much controversy among economists. Generally speaking, there are two main contenders in the field. One is Keynes' liquidity preference by Keynes and the other is the loanable funds theory connected with Wicksell as well as numerous Swedish economists, in addition to the British economist D.H. Robertson, afterwards, economists such as Ohlin, Myrdal, Lindahl, Robertson and J. Viner also significantly contributed to the loanable funds theory. The Keynes' Monetary Theory of Interest was discussed in quest of underpinning one of the independent variable: Interest rate volatility.

The Keynes' Monetary Theory of Interest views interest as the recompense for valedictory with liquidity for a stated duration (Keynes, 1936). In this theory, interest rate was ascertained by the forces of demand and supply of money (Keynes, 1936). Demand for money is referred to as the liquidity preference, which refers to the civic desire to hold cash. Keynes outlines three drivers driving the public to hold liquid money; these include the transaction, precautionary and speculative motives.

The transaction motive refers to the demand for cash to meet current individual and business transactions. Keynes (1936) maintains that, people hold liquid cash so as to bridge the gap amid income receiving and its expenditure; this is referred to as the income motive. Business entities also require holding liquid cash so as to finance their current expenditure; this is called the business motive. Holding money so as to cater for unforeseen contingencies such as illness, accidents, unemployment and tide over unfavorable conditions and gain from unexpected deals is referred to as the precautionary motive (Keynes, 1936).

The deflections of interest rates from the point where they were determined by the forces of demand and supply, to the point in 2016 where the interest rate capping came into force, triggered the intimate study of the Keynes' Monetary Theory of Interest so as to underpin the independent variables used in this study, interest rate volatility.

2.3 Conceptual Framework

A conceptual framework is as succinct depiction of phenomenon under investigation supplemented with visual-graphic portrayal of the chief variables under inquiry (Ngugi, 2013). The conceptual framework guiding this research was given in figure 2.1 below.

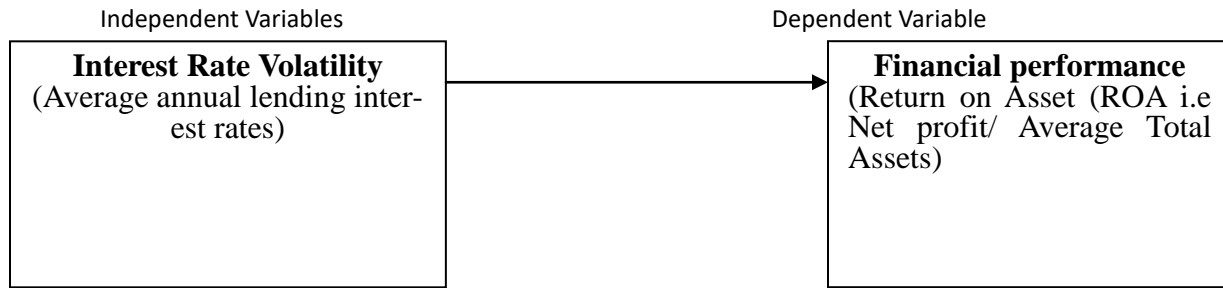


Figure 2.1 Conceptual framework

3.0 METHODOLOGY

3.1 Target Population of Study

Population is the entire group of attention which the scholar desires to examine or study (Umair, 2018). It refers to clearly defined elements, service, people, things or households under investigation (Umair, 2018). The target population in this study comprised the 11 commercial banks trading at the NSE for a period of 10 years between 2009 and 2018 as indicated in appendix 3, consequently making the units of analysis in this research to be 110 units.

3.2 Data Collection Instruments & Procedure

These are means in which information from the subject under inquiry is acquired (Kabir, 2016). Secondary data was used in this study, since it is utmost suitable in gathering reliable data which relate to the variables under investigation. The data collection was through documents review of audited and published reports from CBK, KNBS and NSE for the 11 commercial banks trading at the NSE for the dependent variable (commercial bank's financial performance) and the independent variable: interest rate volatility.

3.3 Measurement of the variables

Variables are concepts which can take on different quantitative values, whether in quantitative or qualitative research, they are the things we measure, control or manipulate in research (Kabir, 2016) Measurement on the other hand is the assignment of numerals to objects or events according to given rules (Kabir, 2016) The commercial banks' financial performance was measured using ROA. Commercial banks' lending rate was used to measure interest rate. Table 3.1 below shows the measurements of variables which were employed in operationalizing the

study variables in this research and facilitated the application of the regression analysis model.

Table 3.1: Measurement of variables

Variables	Variables measurement approach
Commercial Banks' Financial Performance	<ul style="list-style-type: none">• Net profit/Average total assets (ROA)
Interest rate	<ul style="list-style-type: none">• Average annual lending interest rates.

3.4 Data Processing

The raw data gathered was converted into computer usable form through the following stages: first, categorization of the observation schedule was done to ensure uniformity during the coding process. Coding process, with categories established for each response, a master codebook was established which was then used to code the rest of the observation schedules. Third stage involved transfer of codes from the serialized observation schedules into a worksheet having responses as variables against schedule serial numbers as identities.

Finally, data was entered into the Statistical Package for Social Sciences (SPSS). With data in the SPSS program, each variable name and label was defined. SPSS has been credited because it can take data from almost any form of file and use it to generate tabulated reports, descriptive statistics, inferential statistics, charts and plots of distribution and it has been used by most recent researchers, such as (Chimkono, 2016)

3.5 Data Analysis

The raw data gathered was cross-examined to ensure that it was correct and complete, which reduces bias, increases accuracy and achieves consistency to ensure correct entry of data. Data analysis was through quantitative techniques. Descriptive analysis generated descriptive statistics in form of mean, variance and standard deviation.

Quantitative analysis was in form of inferential analysis namely correlation and regression analysis. A series of diagnostic tests were conducted before analyzing and interpreting the regression model. The first test was the nor-

mality test (Skewness and Kurtosis), which was used to evaluate the distribution pattern of the data. The Pearson's Correlation analysis was conducted so as to analyze the association amid the dependent variables (Commercial Banks' Financial Performance) and the independent variables (interest rate volatility) The Regression Analysis Model was conducted and the regression coefficients generated from the model were analyzed, interpreted and decision made whether to accept or reject the null hypothesis at 95% level of significance. The Regression Analysis Model was established in the following manner:

$$FP = \beta_0 + \beta_1 IR + \epsilon.$$

Where:

FP: Is the Annual financial performance of the banks

IR: Is the Annual weighted average lending interest rates

β_0 : Is the constant or the y intercept

β_1 , is the Beta coefficients of the regression equation.

ϵ : Is the error term.

The coefficients generated from the Regression Model were used to test the null hypotheses at five percent (5%) significance level as shown in Table 3.2 of summary of the hypothesis, regression test statistics, and decision rule. The study used tables to represent the general trend of the data from 2009 to 2018 (10 years' data) of the listed commercial banks at the NSE.

Table 3.2: Summary of Hypothesis, Model, Test Statistics and Decision Rule

HYPOTHESIS AND MODEL	TEST STATISTIC	DECISION RULE
<p>H01: Interest rate volatility has no significant impact on the financial performance of commercial banks listed at the Nairobi Securities Exchange</p> <p>$FP = \beta_0 + \beta_1 IR + \epsilon$</p> <p>Where FP -Dependent variable, β_0 is Y Intercept, β_1 is the slope of interest rate and ϵ is the regression residual or error term</p>	<p>Karl Pearson Correlation product Moment and linear regression (relationship between Interest rate and Financial performance)</p>	<p>H01: $\beta_1 = 0$</p> <p>HA1: $\beta_1 \neq 0$</p> <p>Accept H01 at $\alpha = 0.05$ if</p> <p>H01: $\beta_1 = 0$ denoting there is a relationship between variables</p> <p>Reject H01 if $\beta_1 \neq 0$</p>

4.0 RESEARCH FINDINGS AND DISCUSSIONS

4.1 Pearson's Correlation Analysis Results

Table 4.1 Correlation Coefficient of Interest Rate, for Financial performance for 110 Observations.

		ROA	INTERESTRATE
ROA	Pearson Correlation	1	-.228
	Sig. (2-tailed)		.526
	N	10	10
INTERESTRATE	Pearson Correlation	-.228	1
	Sig. (2-tailed)	.526	
	N	10	10

** . Correlation is significant at the 0.01 level (2-tailed).

* . Correlation is significant at the 0.05 level (2-tailed).

4.1.1 Relationship between Interest rate and Financial Performance

Results from the correlation table 4.1 indicated an inverse relationship amid Interest rate and financial performance of -0.228, thus revealing a weak correlation amid interest rate and financial performance which was not significant at 0.05. When interest rate increases by one percent, on average, financial performance will decrease by 22.8 percent, holding other variables constant.

These results were consistent with the study done by Mwangi (2017) who found an inverse association amid interest rate and financial performance measured by ROA on the insurance companies in Kenya.

4.2 Regression Model Analysis.

Table 4.2 Regression Model Analysis.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1993.968	8.082		246.729	.000
INTERESTRATE	.191	.232	.123	.823	.448

a. Dependent Variable: Financial Performance

4.2.1 Regression Analysis Model Equation

From the regression model analysis table 4.2 above, model equation was;

$$FP = 19993.968 - 0.346IR + \epsilon.$$

Where:

FP: Is the Annual financial performance of the banks

IR: Is the Annual weighted average lending interest rates

Regression results on the coefficients of interest rate were positive. This means an increase in interest rate results to a rise in financial performance by 19.1 units; these results concurred with the findings of Emase (2017) who established a positive relationship amid interest rates and financial performance.

4.2.2 Hypothesis Testing for Relationship between Interest Rate, and commercial banks financial performance

Hypothesis	T Stat	Sig.	Conclusion
H01: Interest rate volatility has no significant impact on the financial performance of commercial banks listed at the Nairobi Securities Exchange.	.823	.448	Reject H01 Since (0.448 > 0.05)

4.3 Discussion of Research Findings

The objective of the study was to investigate the Impact of Interest rate volatility on the financial performance of commercial banks listed at the Nairobi Securities Exchange. Secondary data of the 11 banks trading at the NSE was acquired from KNBS, CBK and NSE for a period of 10 years between 2009 and 2018. The macroeconomic variables considered in this research were: Interest rate volatility, Inflation rate volatility, exchange rate volatility and GDP volatility. Financial performance of the commercial banks was measured using ROA. The data collected was analyzed, interpreted and finally summarized.

The correlation results in table 4.1 indicated a feeble inverse relationship between Interest rate and financial performance of -0.228. These results were consistent with the study done by Mwangi (2017) who found an inverse association amid interest rate and financial performance measured by ROA on the insurance companies in Kenya. The interest rate coefficient of regression was 0.448, this result lead to the rejection of H01, which stated that Interest rate volatility has no significant impact on the financial performance of commercial banks listed at the Nairobi securities Exchange, since (0.448>0.05).

5.1 Conclusion

In the review of empirical studies, research works done by: Mwangi (2017), Moyo (2020)), Otambo (2016), Maysa'a (2018), Kaluwa & Chirwa (2017) and Chimkono (2016) were reviewed.

The reviewed literature evidently established a gap in Kenyan research since majority of the research conducted considered variables in different sectors, or used a single variable and others were done outside Kenya. This

present research consequently constricts the gap by establishing the Impact of Interest rate volatility on the financial performance of commercial banks at the Nairobi Securities Exchange.

The research hypothesis tested led to the rejection of H01, at 95% confidence level. This means that interest rate, volatility significantly affect the financial performance of commercial banks, hence require close monitoring.

5.2 Recommendations

The researcher recommended the following after data analysis, interpretation and hypothesis testing: Commercial banks in Kenya ought to take full control of interest rates fluctuations, since they significantly affect their financial performance as indicated by the findings from the results, and that forces of demand and supply, among others factors should be determining interest rates instead of interest rate capping as was witnessed in Kenya in 2016; when commercial banks interest rate was capped. The government and other policy making institutions such as the CMA and KRA ought to take into consideration the volatility of the macro-economic variables when making policies. Investors, who would wish to invest in stocks at the NSE also, ought to be vigilant on the interest rates offered, since they affect financial performance and consequently their return on their investments

5.3 Suggestions for Further Studies

For future studies, it is proposed that another study may be carried out to cover current emerging issues in the banking industry and the macroeconomic variables. A study on commercial banks and their gearing may be conducted. A study on commercial banks and the macroeconomic variables using ROE as a measure of financial performance may also be conducted. Furthermore, expansion of the study with extra segments of the economy, for instance first moving consumer goods companies with more observations could be expedient in enabling researchers to generalize findings and enhance the quality of outcomes. Finally, the study recommends the use of different tools of analysis and the number of years under study to be extended so as to increase reliability and generalization of results.

Acknowledgment

I hereby wish to thank God Almighty for giving me the capacity to undertake this research work. Pastor Steve Thuku for his prayers and well wishing, my wife (Caroline Kathambi) for her overall support, Mr. Jay Sondhi and Mr. Shafiq for their financial support during the entire research period.

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