ISSN 2959-7048 (Print)
ISSN 2959-7056 (online)
Research Bridge Publisher, International Journal of Social Science and Humanities Research, Vol. 2, Issue 3, pp: (263-279), Month: September – December 2024, Available at: https://researchbridgepublisher.com/

Monetary Policy Instruments and Financial Performance of the Banking Industry in Kenya.

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Crossref DOI: 10.61108/ijsshr.v2i3.140

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ABSTRACT

The Kenyan banking sector has faced significant volatility in recent years, notably marked by a decline in Return on Assets (ROA). This decrease reflects the sector's struggles with rising inflation, currency depreciation, and increased non-performing loans. Economic uncertainties and tighter global monetary policies have compounded these challenges, resulting in a more unstable financial environment. This volatility underscores the sector's sensitivity to both domestic and international economic conditions. In response, this research aimed to investigate the effect of monetary policy instruments on the financial performance of banks in Kenya. The study sought to analyze the effect of lending rates, money supply, open market operations (OMO), and the Central Bank Rate (CBR) on banks' financial performance. Anchored on four relevant theories—the Loanable Funds Theory, Quantity Theory of Money, Keynesian Economics, and Zero Bound Theory. The research utilized a causal design and a multiple linear regression model. Covering all 42 banks operating in Kenya from January 2009 to December 2023, the study employed secondary data. The correlation analysis reveals significant relationships between the monetary policy instruments and the financial performance of commercial banks in Kenya. Lending rates demonstrate a positive relationship with financial performance, suggesting that higher rates may benefit banks' profitability. In contrast, both money supply and central bank rate show negative associations with financial performance, implying that increases in these variables might hinder profitability. Additionally, the analysis indicates a positive link between open market operations and bank performance, highlighting the varied effects of these monetary instruments on the banks' financial outcomes. Collectively, these insights underscore the interconnectedness of these monetary policy instruments and their impact on the financial performance of banks in Kenya. Given the complex interplay of these factors, policymakers should adopt a holistic view, regularly reviewing and adjusting policies to maintain economic stability while supporting a robust banking sector.

Keywords: Monetary Policy Instruments, Financial Performance, Banking Industry

APA CITATION;

Muia, E. M., & Mwikamba, T. M. (2024). Monetary Policy Instruments and Financial Performance of the Banking Industry in Kenya. *International Journal of Social Science and Humanities Research (IJSSHR) ISSN 2959-7056 (o); 2959-7048 (p), 2*(3), 263–279. **https://doi.org/10.61108/ijsshr.v2i3.140**

1.0 INTRODUCTION

1.1 Background of the Study

Monetary policy is the instrument used by the monetary authority to regulate the economy. Banks in Kenya operate under the regulatory framework defined by the Banking Act Cap 488 and are supervised by the Central Bank of Kenya (CBK) per the provisions of the CBK Act, Cap 491. As outlined in Article 231 of the Constitution of Kenya as well as Sections 4 and 4A of the CBK Act, one of the CBK's core mandates is to formulate and implement monetary policy aimed at maintaining general price stability and purchasing power. This mandate positions the CBK to adjust monetary levers, including bank reserve requirements, the policy rate, and open market operations, to target low, steady inflation rates (Central Bank of Kenya, 2023). The CBK employs monetary policy transmission mechanisms to influence macro financial conditions and achieve its inflation-targeting goals. Changes to monetary policy stance and instruments have downstream impacts on commercial bank behavior and operational parameters. Thus, CBK policy plays a key role in shaping the banking sector regulatory.

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During the period spanning 2009 to 2023, the implementation of monetary policy faced significant hurdles as the country grappled with the aftermath of the COVID-19 pandemic, electoral processes, and their subsequent repercussions in 2023. These challenges posed considerable obstacles to the effective execution of monetary policy, resulting in a decline in pre-tax profits with the sector experiencing a gradual decline in its financial performance with banks in Kenya posting a 4.9 percent decline in pre-tax profit generated from the Kenyan market in the nine months ended September 2023 as loan defaults soared to levels last seen 16 years ago (Business daily, 2023). In response to the numerous challenges faced in the Kenyan banking environment, CBK implemented measures aimed at addressing these issues, including the removal of interest rate capping. The interest rate caps had constrained banks by limiting the rates they could charge on loans, thereby reducing their willingness to lend. Given that interest charged on loans constitutes a significant source of income for banks, the removal of these caps aimed to alleviate these limitations and encourage banks to extend credit more freely.

1.2 Statement of the problem and Research Objective

The ROA of the Kenyan banking sector has shown significant fluctuations over the past 15 years, reflecting the dynamic nature of the country's economic and financial landscape. In 2009, the ROA stood at 2.60%, marking the beginning of a period of growth and prosperity for the sector. From 2009 to 2013, the banking sector experienced a remarkable upward trend in ROA. The ratio increased steadily, rising from 2.60% in 2009 to 3.60% in 2010, then to 4.40% in 2011, before reaching and maintaining a peak of 4.70% in both 2012 and 2013. This period of sustained growth likely reflected a combination of factors, including economic expansion, improved operational efficiencies, and possibly favorable regulatory conditions.

However, 2014 marked a turning point, with ROA declining sharply to 3.40%. This downturn continued into 2015, with ROA further decreasing to 2.90%. The sector showed signs of recovery in 2016, with ROA improving to 3.30%, but this proved to be short-lived. The years 2017 to 2019 saw relatively stable, albeit lower, ROA figures. The ratio hovered around 2.70% to 2.80% during this period, suggesting a new normal for the sector's profitability. The year 2019 closed with a ROA of 2.63%, slightly lower than the previous year.

The impact of the COVID-19 pandemic is starkly evident in the 2020 figure, with ROA plummeting to 1.70%, the lowest point in the entire 15-year period. This dramatic decline reflects the severe economic disruptions caused by the global health crisis, including reduced economic activity, increased loan defaults, and operational challenges due to lockdowns and social distancing measures. Remarkably, the sector demonstrated strong resilience in 2021, with ROA rebounding significantly to 3.30%. This recovery continued into 2022, with ROA further improving to 3.70%, nearly reaching pre-pandemic levels. This rapid recovery likely reflects a combination of economic reopening, government support measures, and the banking sector's adaptability to the new operating environment. However, the most recent data for 2023 shows a decline to 2.90%, indicating that challenges persist in the sector. This decrease aligns with the information provided earlier about increased non-performing loans, high inflation, and currency depreciation affecting the banking sector's performance.

In conclusion, the ROA trends from 2009 to 2023 paint a picture of a banking sector that has experienced periods of significant growth, followed by challenges and volatility. The sector's ability to recover from the 2020 downturn is noteworthy, but the recent decline in 2023 suggests that ongoing economic pressures continue to impact profitability. These trends underscore the

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importance of adaptive strategies and prudent risk management in navigating the complex and ever-changing financial landscape of Kenya.

The banking industry's importance to Kenya's economy cannot be overstated, accounting for 66% catastrophic consequences, potentially leading to severe economic instability, banking sector distress, and systemic risks.

1.3 General Objective Of The Study

The general objective of the study was to investigate the effect of monetary policy instruments on the financial performance of the banking industry in Kenya. The specific objectives of the study were as follows:

i. To determine the effect of lending rate on financial performance of the banking industry in Kenya.
ii. To examine the effect of open market operations on financial performance of the banking industry in Kenya.
iii. To evaluate the effect of central bank rate on financial performance of the banking industry in Kenya.
iv. To assess the effect of money supply on financial performance of the banking industry in Kenya.

2.0 LITERATURE REVIEW

2.1 Theoretical Review

The theoretical framework covered includes loanable funds theory, quantity theory of money, Keynesian theory and zero bound theory.

2.1.1 Loanable Funds Theory

The loanable funds theory, also known as the neo-classical theory of interest, provides a framework for understanding how interest rates are determined within an economy. The theory holds that the availability of loanable funds and the desire to borrow or lend collectively establish a market-clearing interest rate.

This theoretical model offers a basis for analyzing the role of interest rates within monetary policy transmission mechanisms. According to the loanable funds theory, when central banks implement tighter monetary policy, such as raising benchmark interest rates, this tends to increase prevailing market interest rates. In turn, higher borrowing costs can reduce loan demand and potentially dampen the financial performance of commercial banks (Bibow, 2001).

2.1.2 Quantity Theory of Money (QTM)

The quantity theory of money establishes a relationship between the supply of money in an economy and the general price levels of goods and services. The logic underlying this theory is that an increase in the supply of money reduces the marginal value or purchasing power per unit of currency. As more money chases the same amount of goods, prices adjust upwards. Therefore, the theory predicts that doubling the money supply, all else equal, will eventually result in a doubling of price levels, resulting in inflation.

This theory is relevant for analyzing the impacts of monetary policy on the financial performance of commercial banks in Kenya. An expansion of money supply may diminish consumer purchasing power and savings over time as price levels rise, making people less able to afford

goods and services. This could dampen investment and lending growth for the banking sector, as consumers are left with no disposable income to invest or save, leading to a decline in the financial performance of the banking sector.

2.1.3 Keynesian Theory

The Keynesian theory, developed by British economist John Maynard Keynes in the 1930s, is a macroeconomic school of thought that emphasizes the role of government intervention in managing economic fluctuations. Keynes proposed that during economic downturns, the government should increase spending and lower taxes to stimulate demand and economic growth. This theory challenged the prevailing classical economic view that markets would self-correct and achieve full employment without government intervention (Skidelsky, 2010).

In the context of monetary policy, Keynesian theory supports the use of open market operations (OMO), particularly the repo rate, as a tool to influence economic activity. When the central bank lowers the repo rate, it effectively increases the money supply, making it cheaper for banks to borrow. This, in turn, is expected to lead to increased lending to businesses and consumers, stimulating economic activity. Conversely, raising the repo rate can help cool down an overheating economy by making borrowing more expensive (Blanchard, 2017).

2.1.4 Zero Bound Theory

It is a term used in the field of macroeconomics and monetary policy to describe a situation where nominal interest rates approach or reach zero percent. It is also known as the "effective lower bound." Zero-bound is an expansionary monetary policy tool where a central bank lowers short-term interest rates to zero, if needed, to stimulate the economy. The zero lower bound theory contends that central banks are constrained in how much they can reduce short-term nominal interest rates, since rates cannot fall below zero percent.

This theory is relevant for monetary policy formulation during periods of economic contraction or low inflation. The ZLB is particularly relevant in discussions about the limitations of conventional monetary policy tools, as central banks typically use interest rate adjustments to stimulate or stabilize the economy. When interest rates approach zero, central banks may face constraints in using traditional interest rate policy to further stimulate economic activity. The zero rate floor matters because lowering interest rates is one mechanism by which central banks try to stimulate the economy during recessions and spur demand. However, rates cannot keep decreasing once they effectively hit zero.

2.2 Empirical review of literature

2.2.1 Lending Rate and Bank Performance

Adamu *et al.* (2023) research on the Relationship between Monetary Policy Instruments and Financial Performance of Commercial Banks in Nigeria. The researchers delved into the intricate relationship between monetary policy instruments, particularly focusing on the impact of interest rates, and the financial performance of commercial banks in Nigeria. Notably, the findings revealed a significant negative effect of interest rates on the financial performance of commercial banks.

Abiola *et al.* (2021) investigated the relationship between Monetary Policy channels and Agricultural Performance in Nigeria, using output employment and export as proxies for Nigerian Agricultural performance and interest rate, credit, exchange rate, and money as indicators of

monetary policy. Their study recommends that the Nigerian government leverage monetary policy, particularly through adjustments to credit restrictions, to stimulate output within the agricultural sector, and suggests broadening the focus beyond the primary goal of economic stabilization through measures like money supply and interest rates. They also propose implementing incentives to encourage agricultural exportation and regulating exported goods' prices to maximize benefits from external trade. In contrast, the forthcoming research explores the performance of the banking sector in Kenya, utilizing ROA as a measure of financial performance, and incorporating additional independent variables such as OMO and CBR. Moreover, it offers insights specifically tailored to Kenya for the period spanning from 2009 to 2023.

In their 2022 study titled "Monetary Policy and the Financial Performance of Quoted Deposit Money Banks in Nigeria," Hassan and Oyedele examined the nexus between monetary policy, specifically emphasizing the role of interest rates, and the financial performance of Nigerian banks. Distinguishing itself from previous research, this study focused on panel data from ten deposit money banks listed on the Nigerian stock exchange as of December 31, 2020. The analysis revealed a notable negative impact of Interest Rate on financial performance, highlighting the vulnerability of banks to fluctuations in interest rates. This study contributes to the existing literature by providing updated insights into the specific dynamics at play within the Kenyan banking sector taking into consideration additional variables such as money supply and central bank rate.

Borio, Gambacorta, and Hofman (2015) analyzed how interest rate changes affect bank profitability across 14 major economies from 1995-2012.It covered 109 large international banks. Specifically, they assessed how shifts in both short-term rate levels and yield curve slopes impact various income statement elements for banks, including provisions for bad debts, net interest margins, non-interest income streams, and ultimately profitability as measured by return on assets (ROA). Employing rigorous econometric analysis, their study revealed a significant positive association between interest rates and bank profit metrics across the dataset. In essence, higher rates tended to bolster profitability for these large international banks over the examined timeframe. The research provides a model for quantifying the effects flowing through from monetary policy rate changes to outcomes for financial institutions. While focused on advanced nations, a similar methodology examining the dynamic could prove insightful within Sub-Saharan Africa banking sectors subject to differing monetary policies and economic conditions. Analysis tailored to Kenya can further elucidate these relationships.

Macharia (2013) conducted a study on the impact of the global financial crisis on the financial performance of commercial banks in Kenya, specifically focusing on those providing mortgage finance. The research incorporated variables such as interest rates, inflation rates, and exchange rates. The findings revealed a negative correlation between interest rates and the financial performance of these banks. However, it's important to note that the study solely concentrated on commercial banks offering mortgage finance services in Kenya. Additionally, the research period spanned from 2004 to 2007, reflecting an analysis of events that occurred some time ago.

2.2.2 Money Supply and Bank Performance

In their 2023 study, "Relationship between Monetary Policy Instruments and Financial Performance of Commercial Banks in Nigeria," Adamu *et al.* scrutinized the nexus between monetary policy instruments and the financial performance of commercial banks in Nigeria, with a particular emphasis on the role of money supply (MS). The findings revealed a significant positive effect of money supply on the financial performance of commercial banks, underscoring its crucial

role in influencing bank profitability and overall economic activity. This study differs in its inclusion of central bank rate and OMO with a focus on the Kenyan landscape within the period 2009-2023.

Abiola *et al*. (2021) found that the money supply (MMS2) to the agricultural sector (CRAS) is statistically significant at the one percent level, showing a positive relationship with output in the agricultural sector (AGDP). Their study suggests that increasing the money supply and directing credit towards agriculture could effectively boost output in the long run, contrary to the conventional belief that such actions may lead to inflation. Additionally, monetary policy interventions targeting money supply and agricultural credit could serve as countercyclical tools, particularly when prices and wages remain relatively fixed in the short term. However, the forthcoming research diverges from Abiola *et al.*'s findings by examining a different context, specifically focusing on the banking sector in Kenya. This study utilized ROA as a measure of financial performance and included additional independent variables such as OMO and CBR. Furthermore, it provides insights specifically tailored to Kenya for the period spanning from 2009 to 2023.

Kimani (2018) examined how money supply, central bank rate, cash reserve ratio and inflation affect the financial performance of Kenyan commercial banks from 2012-2016. The study found money supply has a positive and significant effect, while cash reserve ratio has a negative and significant effect. This current study differs in that it assessed the more recent 2009-2023 period and incorporate lending rates as an explanatory variable, with ROA gauging bank performance.

2.2.3 Open Market Operations and Bank Performance

Adamu et al. (2023) examined the impact of OMO on the financial performance of commercial banks in Nigeria. Their study found a significant positive effect of OMO on bank earnings, highlighting the influence of central bank interventions in the money market on commercial banks' profitability. This research utilized a causal design and explored how OMO, alongside other monetary policy instruments, affected financial performance, underscoring the importance of central bank strategies in shaping bank outcomes. In contrast, the study conducted focused on the Kenyan banking sector, examining the interplay between OMO and financial performance with an emphasis on Return on Assets (ROA) for the period 2009-2023.

Hassan and Oyedele (2022) explored the relationship between monetary policy and the financial performance of Nigerian banks, including OMO as a key variable. Their findings indicated that OMO had a significant positive impact on financial performance, suggesting that central bank operations play a crucial role in influencing bank profitability. This study's approach, utilizing data from commercial banks, provides a valuable model for analyzing similar dynamics in the Kenyan context, where the study also considered additional variables such as money supply and central bank rate.

Meshak and Nyamute (2016) investigated the impact of monetary policy on the financial performance of Kenyan banks, focusing on OMO, Cash Reserve Ratio (CRR), and Central Bank Rate (CBR). They found that OMO significantly influenced bank performance over the period from 2005 to 2015. Their research highlighted the importance of OMO in shaping financial outcomes for banks, though the study's scope was limited to historical data. The current study expanded on these insights by including additional variables and focusing on the recent period of 2009-2023.

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Mulwa (2015) analyzed the effects of various monetary policy tools, including OMO, on the financial performance of Kenyan commercial banks. The study revealed that while the Treasury Bill rate positively impacted performance, the effects of OMO were less clear. The conducted research built on this by incorporating updated data and additional independent variables such as lending rates, aiming to provide a comprehensive analysis of OMO's role in the Kenyan banking sector's financial performance.

2.2.4 Central Bank Rate and Bank Performance

Central bank rate plays a pivotal role in influencing the financial performance of Deposit-Taking Savings and Credit Cooperatives (DT SACCOs) in Kenya, as explored in a study by Otwoko, Maina, and Kwasira (2023). Alongside open market operations and cash reserve ratio for commercial banks, monetary policy factors are deemed critical drivers of interest rates in the financial intermediation industry, consequently impacting interest rate spreads in DT SACCOs. The study underscores the multifaceted influence of monetary policy on various aspects of financial performance, including return on assets, investment decisions, and dividend policy, among DT SACCOs. The study's regression analysis revealed a statistically insignificant relationship between monetary policy and the financial performance of DT SACCOs in Kenya, indicating limited impact despite a positive coefficient and a p-value of 0.226. The study, unique in its focus on DT SACCOs, diverged from current research by examining commercial banks in Kenya and integrating additional variables such as the money supply, offering nuanced insights into the complex dynamics of monetary policy's influence on financial performance within the Kenyan financial sector.

Kimani (2018) analyzed how central bank base rate, money supply, cash reserve ratio and inflation affect the financial performance of commercial banks in Kenya over 2012-2016. The independent variables were money supply, cash reserve ratio, central bank base rate and inflation. The researcher concluded that CBR has a negative and insignificant effect on the financial performance of commercial banks in Kenya, a positive and significant effect of money supply, and an insignificant and negative effect of inflation. Bank size had a moderating effect on financial performance. This study differed as it included lending rates as an independent variable and a review of the effect in recent years being 2009-2023 with ROA as the performance measure

Meshak and Nyamute (2016) researched how cash reserve ratio, central bank base rate and open market operations impacted listed Kenyan banks' financial performance over 2005-2015. The study established these monetary policies influence bank financial performance over the period examined. The controlled variables in the study were CBR, OMO and CRR. The study found that the three independent variables in the study (CRR, CBR Rate and OMO) influenced the financial performance for the period under study. This study utilized two new independent variables money supply and lending rates.

Mulwa (2015) Conducted research on the effect of monetary policy on the financial performance of commercial banks in Kenya. The focus lay on how Treasury bill rate, central bank rate and cash reserve ratio affected the financial performance of Kenyan commercial banks. Findings showed T-bill rate had a positive effect, central bank rate had a negative effect, while cash reserve ratio's effect was negative and insignificant. The study aimed to determine and report the effect of monetary policy tools, if any, on the financial performance of commercial banks in Kenya. This research differed in that it took a look at money supply and lending rate as independent variables for the time period 2009-2023.

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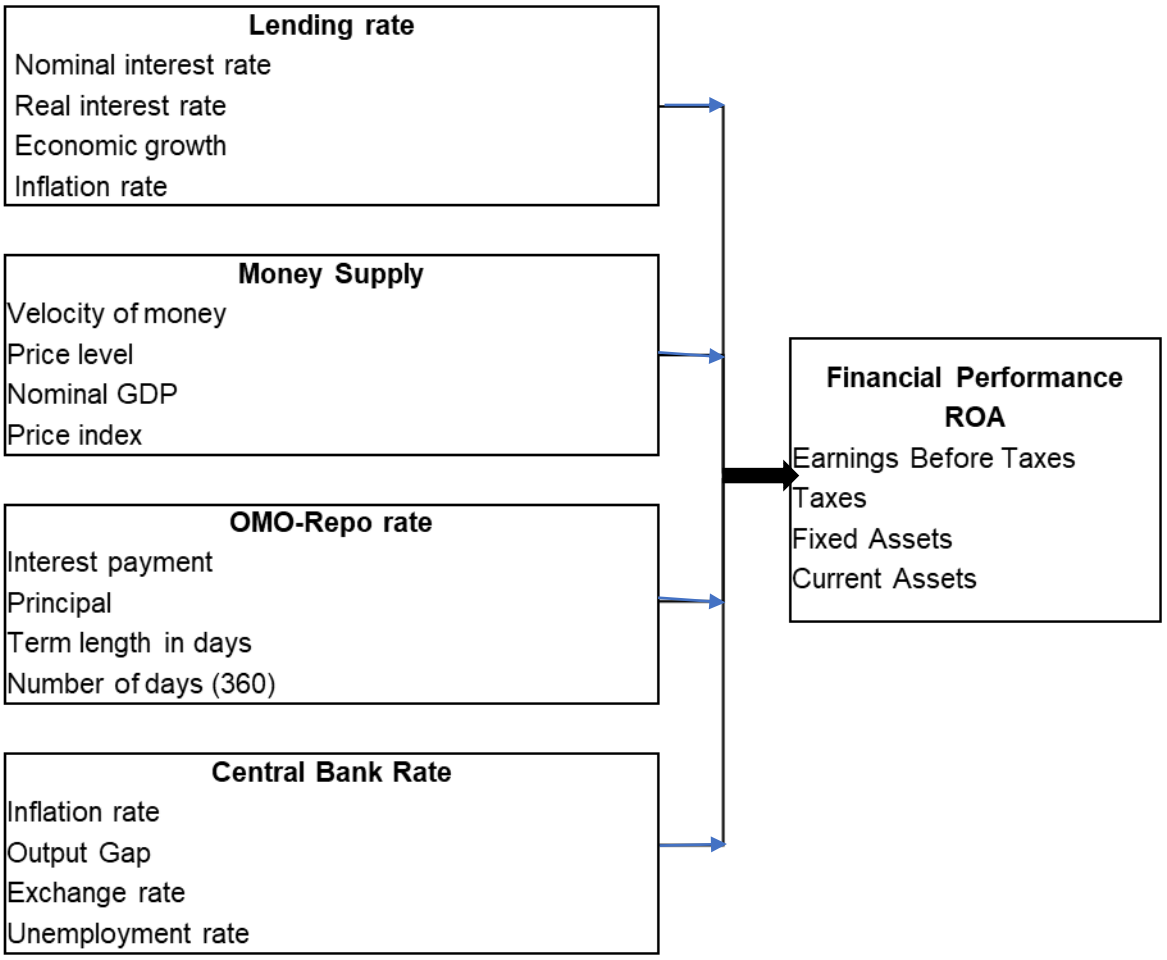
The foregoing theoretical and empirical literature review culminates in a conceptual framework that is depicted in figure 1.

Monetary Policy Instruments **Financial Performance**



Independent Variables **Dependent variable**

Figure 1: Conceptual Framework

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3.0 RESEARCH METHODOLOGY

This research adopted a causal research design, which was used to establish cause-and-effect relationships among variables. The population targeted for this study included all the commercial banks that were registered and operational in Kenya during the study period. As reported by the Central Bank of Kenya, there were 42 commercial banks operating in the country as of December 2023. According to Lohr (2021), conducting a census offers the advantage of encompassing the entire population, thus eliminating the need to extrapolate population characteristics from a sample. Since a statistic calculated from a census has no sampling error, the sample for this study consisted of all 42 banks in the population. The data utilized in this study was secondary and sourced from various outlets, including audited financial statements of selected commercial banks and the Central Bank of Kenya website. Diagnostic tests were performed to ensure that the data was adequate for analysis. The study conducted diagnostic tests for normality, multicollinearity, autocorrelation, and heteroscedasticity.

The below model was used:

$Y_{i,t} = \alpha + \beta_1 X1_{i,t} + \beta_2 X2_{i,t} + \beta_3 X3_{i,t} + \beta_4 X4_{i,t} + \varepsilon_{i,t}$……………………………………………..(1)

Where: $Y_{i,t}$ = Financial performance measured by ROA at time t.

i=units under observation with i=1

t= time with t=2009….2023.

α =constant term

$\beta_1, \beta_2, \beta_3, \beta_4$ =the regression slope

$X1_{i,t}$ = is the lending rate as measured using the interest rate that is nominal interest rate less the rate of inflation.t.

$X2_{i,t}$ = Money supply in the country as measured by the level of prices of goods multiplied by Nominal GDP divided by price index and the output divided by the velocity of money at time t.

$X3_{i,t}$ = OMO repo rate calculated by dividing the total interest payment by the principal amount, and then multiplying by 360 over Number of Days where the number of days represents the duration of the repo transaction at time t.

$X4_{i,t}$ = the rate of interest central bank charges on loans to banks. It will be measured using the below formula at time t.

$CBR = \alpha + \beta_1\pi + \beta_2 Y + \beta_3 E + \beta_4 U + \varepsilon$

Where:

α = A constant term representing the baseline interest rate
$\beta_1, \beta_2, \beta_3, \beta_4$ = Coefficients representing the weight given to each variable
π = Inflation rate
Y = Output gap
E = Exchange rate (e.g., as an index or percentage change)
U = Unemployment rate
ε = Error term to account for other factors not explicitly included in the model

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4.0 FINDINGS AND DISCUSSIONS

4.1 Descriptive Results

Summary statistics was done on the secondary data and the results are presented in the below table.

Table 1: Descriptive Results

	Lending rate	*Money Supply*	*OMO Repo Rate*	*Central Bank Rate*	*ROA*
Mean	14.64000%	1189783.33	7.60067%	9.25800%	3.28867%
Standard Error	0.578442%	156255.748	0.92807%	0.617605%	0.216212%
Standard Deviation	2.240297%	605175.909	3.59442%	2.391975%	0.837384%
Kurtosis	-.001	-1.421	3.930	5.907	-.081
Skewness	.720	-.178	1.591	2.004	.286
Range	7.650%	1727229	15.210%	10.140%	3.000%
Minimum	12.000%	297294	2.500%	6.360%	1.700%
Maximum	19.650%	2024523	17.710%	16.500%	4.700%
Sum	219.600%	17846750	114.010%	138.870%	49.330%
N	15	15	15	15	15

4.1.1 Lending Rate

The descriptive statistics for the lending rate variable, IV1Lendingrate, reveal a range from 12.00% to 19.65%, with an average rate of 14.64%. The standard deviation of 2.24% indicates a moderate level of fluctuation, showing that the lending rates varied across the years. The distribution is positively skewed, with a skewness value of 0.72, indicating that higher lending rates were less common but occurred occasionally. Additionally, the kurtosis of -0.001 shows a nearly normal distribution of lending rates, implying few extreme values. These statistics highlight a moderate consistency in lending rates with occasional spikes.

4.1.2 Money Supply

The money supply variable, represented by the total stock of money available in the economy, had an average value of 1,189,783.33 with a standard deviation of 605,175.91, reflecting a significant variation in the amount of money circulating in the economy over the 15-year period. The range, from a minimum of 297,294 to a maximum of 2,024,523, shows that the money supply fluctuated widely, likely due to various monetary policies or economic conditions. The skewness value of -0.178 suggests a slight negative skew, meaning that lower values of money supply were more common. The kurtosis value of -1.421 indicates a platykurtic distribution, suggesting that there were fewer extreme values compared to a normal distribution.

4.1.3 OMO Repo Rate

The descriptive statistics for the OMO Repo rate variable, IV3OMOReporate, has an average value of 7.60%, with a standard deviation of 3.59%, indicating some level of variability in the repo rate during the period analyzed. The range of repo rates, from 2.5% to 17.71%, indicates that this rate has fluctuated significantly, potentially due to different central bank interventions in response to economic conditions. The skewness of 1.59 indicates a positive skew, suggesting that higher repo rates were slightly less common but still present. A kurtosis value of 3.93 indicates that the distribution is leptokurtic, which means it has heavier tails and a sharper peak compared to a normal distribution (which has a kurtosis value of 3). In this case, the distribution exhibits more

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extreme outliers, as the higher kurtosis value suggests that data points are more concentrated around the mean with a significant number of values farther away from the center. Overall, the repo rate data suggest occasional central bank adjustments to maintain financial stability.

4.1.4 Central Bank Rate

The descriptive statistics for the Central Bank Rate (CBR), IV4Centralbankrate, had an average of 9.26%, with a standard deviation of 2.39%, indicating moderate variability over the analyzed period. The range from 6.36% to 16.50% shows that the central bank rate experienced significant shifts, likely reflecting changing monetary policies aimed at controlling inflation or stimulating growth. The skewness value of 2.004 suggests a strong positive skew, meaning that higher central bank rates were much less common, but they did occur, possibly during periods of tight monetary policy. The kurtosis value of 5.907 indicates a leptokurtic distribution, with more extreme values than expected in a normal distribution, signifying that extreme central bank rate values were more frequent than usual, likely in response to economic volatility.

4.2 Diagnostic Tests

The study conducted diagnostic tests to ensure that the assumptions of ordinary least squares were adhered to before running the regression models and to confirm that the data was suitable for inferential analysis. Among the tests performed were the assessment of the dependent variable's normality, kurtosis, and multicollinearity. The sample data used appear to be from a normally distributed population.

Table 2: Test of Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	Lending Rate	.46	2.15
	Money Supply	.49	2.05
	OMO Repo Rate	.75	1.33
	Central Bank Rate	.85	1.18

a. Dependent Variable: Return on Assets

The Lending Rate had a Tolerance of 0.46 and a VIF of 2.15, suggesting moderate multicollinearity, meaning its variance is inflated by approximately 2.15 times due to correlations with other variables. Similarly, the Money Supply showed a Tolerance of 0.49 and a VIF of 2.05, indicating it also experiences moderate variance inflation. In contrast, the OMO Repo Rate had a Tolerance of 0.75 and a VIF of 1.33, reflecting low multicollinearity and suggesting it remains relatively independent of the other predictors. Lastly, the Central Bank Rate displayed a Tolerance of 0.85 and a VIF of 1.18, indicating very low multicollinearity. None of the VIF values exceed the common threshold of 5, indicating that the independent variables are suitable for inclusion in the regression model without significant multicollinearity concerns.

Table 3: Test of Autocorrelation

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.87[a]	.75	0.65	0.49%	1.70

a. Predictors: (Constant), IV1, IV2, IV3, IV4
b. Dependent Variable: DV

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In testing for autocorrelation using the Durbin-Watson statistic, a value of 1.70 indicates that there is little to no autocorrelation in the residuals. The value of 1.70 is within an acceptable range, it implies that autocorrelation is not a concern in this model, which is important for the validity of the regression assumption.

4.3 Correlation Analysis

Table 4: Correlation Results

		ROA
Lending Rate	Pearson Correlation	.653
	Sig. (2-tailed)	.008
	N	15
Money Supply	Pearson Correlation	-.534
	Sig. (2-tailed)	.040
	N	15
OMO Repo Rate	Pearson Correlation	.547
	Sig. (2-tailed)	.035
	N	15
Central Bank Rate	Pe arson Correlation	-.692
	Sig . (2-tailed)	.004
	N	15

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

The correlation analysis reveals several significant relationships between the independent variables (IVs) and the dependent variable (DV), Return on Assets (ROA). Firstly, there is a strong positive correlation between the Lending Rate and ROA, with a Pearson correlation coefficient of 0.653 and a significance level of 0.008. This indicates that as the lending rate increases, the ROA tends to increase as well, suggesting that higher lending rates may contribute positively to a bank's financial performance.

Conversely, the analysis shows a moderate negative correlation between Money Supply and ROA, with a Pearson correlation of -0.534 and a significance level of 0.040. This negative relationship suggests that increases in the money supply may be associated with a decline in ROA, possibly indicating that excessive liquidity could lead to reduced profitability.

Additionally, the OMO Repo Rate demonstrates a positive correlation with ROA (Pearson correlation 0.547, significance 0.035). This suggests that higher OMO Repo Rates may enhance ROA, aligning with the notion that favorable monetary policy can support bank profitability.

Finally, the Central Bank Rate exhibits a strong negative correlation with ROA, with a coefficient of -0.692 and a significance level of 0.004. This significant negative relationship indicates that increases in the Central Bank Rate are likely to adversely affect a bank's ROA, possibly reflecting the higher costs of borrowing for banks, which can constrain their profitability.

4.4 Regression Results

The table below presents the overall regression results between monetary policy and bank performance in Kenya.

Table 5: Regression Results

ISSN 2959-7048 (Print)
ISSN 2959-7056 (online)
Research Bridge Publisher, International Journal of Social Science and Humanities Research, Vol. 2, Issue 3, pp: (263-279), Month: September – December 2024, Available at: https://researchbridgepublisher.com/

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.87[a]	.75	0.65	0.49%	1.70

a. Predictors: (Constant), Lending Rate, Money Supply, OMO, CBR Rate
b. Dependent Variable: ROA

The findings presented in Table 3 reveal an R Square value of 0.75, suggesting that approximately 75% of the variations in bank performance, as measured by Return on Assets (ROA), can be attributed to the monetary policy instruments—namely, the lending rate, money supply, OMO repo rate, and central bank rate. This leaves 25% of the variations in bank performance unexplained by the model, indicating the potential influence of other factors not included in this analysis.

When comparing these results to those of previous studies, we observe a notable variation in explanatory power. For instance, Meshak and Nyamute (2016) found a higher explanatory power, with 82.7% of returns on the Nairobi Securities Exchange attributed to monetary policy variables such as the central bank rate (CBR), cash reserve ratio (CRR), and OMO for the period 2005-2015. This suggests that the impact of monetary policy was particularly pronounced in that context. In contrast, Mulwa (2015) reported a substantially lower R Square of 0.177, indicating that only 17.7% of variations in commercial banks' financial performance in Kenya were explained by monetary policy tools during 2010-2014.

These varying results across studies imply that the impact of monetary policy on bank performance may be influenced by several factors, including the specific time period examined, the particular set of policy instruments considered, and potentially other economic or institutional factors not captured in these models. The higher R Square value observed in the current analysis highlights the significant role that monetary policy instruments play in determining bank performance, while also acknowledging the importance of considering external factors that may affect these relationships.

The table 6 below presents the analysis of variance (ANOVA) results for the model of the study.

Table 6: ANOVA Results

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	7.39	4	1.85	7.60	.004[b]
	Residual	2.43	10	.24		
	Total	9.82	14			

a. Dependent Variable: ROA
b. Predictors: (Constant), Lending Rate, Money Supply, OMO, CBR Rate

The ANOVA table provides insights into the overall significance of the regression model used to examine the relationship between monetary policy instruments and the financial performance of banks in Kenya, measured by Return on Assets (ROA). The regression sum of squares (7.39) indicates the amount of variation in ROA explained by the independent variables (lending rate, money supply, OMO repo rate, and central bank rate). The residual sum of squares (2.43) represents the variation not explained by the model. With 4 degrees of freedom (df = 4) for the regression and 10 degrees of freedom for the residual, the mean square for the regression is 1.85, while the mean square for the residual is 0.24.

ISSN 2959-7048 (Print)
ISSN 2959-7056 (online)
Research Bridge Publisher, International Journal of Social Science and Humanities Research, Vol. 2, Issue 3, pp: (263-279), Month: September – December 2024, Available at: https://researchbridgepublisher.com/

The F-statistic of 7.60, with a significance level (p-value) of 0.004, shows that the overall model is statistically significant at the 5% significance level. This means that the independent variables collectively explain a significant portion of the variation in ROA, rejecting the null hypothesis that the model has no explanatory power. In summary, the ANOVA results indicate that the monetary policy instruments included in the model significantly impact the financial performance of the banking industry in Kenya.

The Table 7 presents the beta coefficient results between the independent and dependent variables for the study. The table reveals a comprehensive analysis of monetary policy instruments' impact on Kenyan banks' Return on Assets (ROA) from 2009 to 2023.

Table 7: Coefficient Results

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	2.55	1.68		1.52	.156
	Lending Rate	.15	.09	.41	1.77	.106
	Money Supply	-1.03_E-007	3.12_E-007	-.07	-.33	.748
	OMO Repo Rate	.04	.04	.16	.89	.395
	Central Bank Rate	-.18	.06	-.52	-3.02	.013

a. Dependent Variable: ROA

The results presented in Table 7 reveal distinct effects of various monetary policy instruments on the financial performance of commercial banks, as measured by Return on Assets (ROA), in Kenya. The model reveals a positive relationship between the lending rate and ROA in Kenya, as indicated by the unstandardized coefficient (B = 0.15). This suggests that for every unit increase in the lending rate, bank performance improves by 0.15 units, though the effect is statistically insignificant (p = 0.106). This finding contrasts with previous studies like those by Adamu et al. (2023) and Hassan and Oyedele (2022), who found a significant negative effect of interest rates on the financial performance of Nigerian banks. In Kenya's context, the positive relationship could reflect differences in how interest rates are structured or utilized by banks. The result partially aligns with Borio, Gambacorta, and Hofman's (2015) findings, which demonstrated that higher interest rates can bolster bank profitability, though their study focused on international banks over a different timeframe.

The coefficient for money supply is extremely small and negative (B = -1.03E-007), suggesting that changes in money supply have an almost negligible effect on the performance of banks. Additionally, the effect is statistically insignificant (p = 0.748). This result contrasts with studies like those by Adamu et al. (2023) and Kimani (2018), both of which found a positive and significant effect of money supply on bank performance. Abiola et al. (2021) also highlighted the positive effect of money supply on agricultural performance in Nigeria, suggesting that sector-specific dynamics may differ. In the Kenyan banking sector, the minimal impact could indicate that other factors, such as liquidity management practices or regulatory policies, play a more significant role in influencing bank performance than changes in the money supply.

The results show that the OMO repo rate has a very small and statistically insignificant effect on bank performance (B = 0.04, p = 0.395). This is inconsistent with findings from Adamu et al. (2023) and Hassan and Oyedele (2022), who observed that OMO had a positive and significant impact on the profitability of commercial banks in Nigeria. Similarly, Meshak and Nyamute

(2016) found that OMO had a significant influence on bank performance in Kenya, albeit over a different time period (2005-2015). The insignificant effect in this study might reflect changes in the effectiveness of open market operations during the 2009-2023 period.

Lastly, the Central Bank Rate (CBR) shows a significant negative relationship with bank performance (B = -0.18, p = 0.013), indicating that as the CBR increases, bank performance decreases. This aligns with Kimani's (2018) study, which found a negative but insignificant effect of the central bank rate on Kenyan bank performance from 2012 to 2016. Similarly, Mulwa (2015) also reported a negative impact of the central bank rate, although the effect was statistically insignificant in his research. This study's significant negative result might reflect the tightening of monetary policy during the examined period, which could have strained bank profitability due to higher borrowing costs and reduced lending activity. However, the result contradicts Meshak and Nyamute (2016), who observed that CBR had a positive influence on financial performance, suggesting that the relationship between CBR and bank profitability in Kenya may have evolved over time.

These varying results across studies highlight the complex and potentially changing nature of the relationship between monetary policy instruments and bank performance in Kenya. The differences could be attributed to varying study periods, methodologies, or changes in the economic and regulatory environment over time.

The coefficient table above was used in coming up with the model below:

ROA i, t = 2.55 i, t +0.15X1 i, t -1.03X2 i, t +0.04X3 i, t -0.18X4 i, t +1.68 i, t

5.0 CONCLUSION AND RECOMMENDATIONS

Based on the findings of this study, it is recommended that banking institutions in Kenya closely monitor lending rates and their effects on financial performance. Given the positive relationship identified between lending rates and Return on Assets (ROA), banks should consider adjusting their lending strategies to optimize interest rates. This approach could enhance profitability while ensuring competitiveness in the market. Additionally, banks may benefit from conducting regular assessments of their pricing strategies to align them with prevailing economic conditions and consumer demand.

The findings also suggest the importance of open market operations in influencing bank performance. Policymakers should prioritize effective implementation of these operations to stabilize the financial environment and promote sustainable growth in the banking sector. By carefully managing liquidity and interest rates through open market transactions, the Central Bank can create a conducive environment for banks to thrive, ultimately leading to improved financial performance across the industry.

Moreover, the central bank rate has a significant impact on the banking sector's financial performance, underscoring the need for the Central Bank of Kenya to adopt a balanced approach when setting this rate. By considering the broader economic context and the specific needs of the banking industry, the Central Bank can facilitate a rate that fosters financial stability while promoting growth. Regular communication with banking institutions could also help align monetary policy objectives with industry needs, enhancing overall financial performance.

Finally, as money supply was identified as a critical factor affecting financial performance, it is recommended that financial authorities in Kenya adopt a proactive stance in managing money supply levels. Strategies to ensure an optimal money supply can support the banking sector's

growth and stability, encouraging lending and investment. By addressing fluctuations in money supply, authorities can better position the banking sector to respond effectively to economic challenges, ultimately promoting a robust financial environment conducive to long-term growth.

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