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Does Monetary Policy Influence Non-performing Loans of Listed Commercial Banks in Kenya?

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Authors' contributions

This work was carried out in collaboration between both authors. Both authors read and approved the final manuscript.

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ABSTRACT

The Kenya banking sector plays a crucial role in Kenya's economy despite the prevailing macroeconomic headwinds in the Country. The Banking Sector Industry Report of 2023 indicated that the banking sector contributed to 66% of gross domestic product as of December 2022. The high levels of non-performing loans remain a concern in the Kenya banking sector. The study sought to assess the influence of monetary policy on non-performing loans in the banking sector in Kenya. The target population is all listed commercial banks in Kenya. Using monthly secondary data from November 2019 to September 2023 obtained from the Central Bank of Kenya, the study utilized a multiple regression model to estimate the influence of monetary policy on the percentage growth of nonperforming loans of listed commercial banks in Kenya. Findings pointed out that Repo rates and Treasury bill rates do not influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio as exhibited by the P-values of 0.327866 and 0.577173 respectively, which is greater than 0.05. The results also implied that the central bank rate and interbank rates do influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio as illustrated by the P-values of

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0.028844 and 0.00018 respectively, which is less than 0.05. According to the findings, the study recommends that policymakers should prioritize creating a strong financial ecosystem so that monetary policy can be utilized to regulate commercial bank interest rates. This will, in effect, serve to decrease the expansion of non-performing loans, reduce risk and entice competitors into the financial sector, enhance the capital base, increase lending to promote feasible projects, and, as a result, stimulate the country's growth.

Keywords: Monetary policy; non-performing loans; banking sector; Kenya.

JEL Classification: E44, E52, G21.

1. INTRODUCTION

The government uses the Central Bank to establish monetary policies, which are then executed through the banking industry. The public lending service is one of the most popular products that banks provide. The banks also take part in the acquisition of government securities, such as bonds and treasury bills, to fund government operations, prevent inflation, and provide commercial banks with investment possibilities that yield high and reliable returns. The market interest rate that commercial banks charge on loans is dependent on the monetary policy determined by the Central Bank of Kenya (CBK).

An economy's banking system's stability is indicated by the credit quality of the loan portfolio held by the banking sector. As a result, NPLs are a crucial sign of how exposed a financial system is to credit risk. Given its impact on the amount of capital reserves made by banks as well as their capacity to extend new loans and perform, the amount of non-performing loans (NPLs) carries additional significance. The increase in non-performing loans (NPLs) reduces the efficiency of a financial system and may cause monetary policy to be implemented more slowly. Banks should strive to maintain a low non-performing loan (NPL) ratio to sustain growth and stability, Kuzucu & Kuzucu [1]. The role of financial regulation is to safeguard the stability of a financial system and correct market conduct by system participants, Michael, Goo, & Wojick, [2]. The role of monetary policy on non-performing loans has received little attention.

In response to the global financial crisis, the UK implemented changes in 2012 that strengthened the Bank of England's position as the hub of monetary and financial stability, with a focus on macroprudential measures. In 2016, more changes were implemented to improve consumer protection and market integrity, Lopez & Saeidinezhad, [3]. Guidelines were released in 2017 by the Basel Committee on Bank Supervision (BCBS) to standardize the measurement and use of non-performing loan exposure. The NPL ratio in the UK decreased from 4% in 2010 to 0.7% in 2017. The NPL ratio has been steady at 1% on average since 2017.

As of 2022, the percentage of non-performing loans held by US banks was less than one percent. Compared to the 4.5 percent attained for non-performing loans in the wake of the financial crisis, this indicates that over 99 percent of loan recipients were repaying their bank loans at that point, Statista, [4]

Conversely, the prevalence of non-performing loans (NPLs) has increased over time in Asian and African nations. The percentage of non-performing loans in Chinese banks fell to 1.63 percent in September 2023, the lowest level since 2014. Out of all the Asian countries, China has the biggest NPL market, Statista, [5]

For African nations, the pattern was almost the same; South Africa saw a low of 2.8% in 2017 and a high of 5.2% in 2021, CEIC, [6]. The increase in non-performing loans has been mostly ascribed to monetary policy ineffectiveness and government shortcomings, Giammanco, Gitta, & Ofria, [7].During the COVID-19 period, there were many difficulties for the banking industry in East Africa as a whole. An average of 8% growth in non-performing loans was found in a sample of the leading Kenyan banks from 2011 to 2021. Kenya's banking industry's credit rating was adversely affected by the rise in risky loans, which decreased return on equity.

The responsibility of maintaining financial stability in Kenya through the preservation of a well-functioning banking system falls on the Central Bank of Kenya (CBK). The CBK Monetary Policy Committee reports the monetary policy

frameworks that control their prudential stance and market behavior. Numerous studies have been conducted on the impact of monetary policy on the profitability of commercial banks. Nevertheless, there has not been much research done on how monetary policy affects non-performing loans. This study endeavors to find out if the monetary policy set out by the CBK influences the level of non-performing loans in the banking sector in Kenya

1.1 The Statement of the Problem

The Kenyan economy continues to be crushed by many factors, including global and local inflationary pressures, and the continued depreciation of the Kenyan shilling against the dollar and other currencies. To promote economic growth and development, the Central Bank of Kenya (CBK), like other Reserve Banks worldwide, is tasked with developing and implementing monetary policies that are intended to preserve established monetary targets. Furthermore, CBK needs to guarantee that regulations are in place to sustain a stable financial system. Notwithstanding the Central Bank Monetary Committee's numerous interventions, there have been unprecedented fluctuations in inflation, exchange rates, and market interest rates since February 2023. Gross non-performing loans have also been increasing exponentially over the years, causing instability in commercial banks. The gross non-performing loans increased from 336.5 billion in January 2020, before the emergence of the coronavirus pandemic, to 617 billion in September 2023, representing a 45.5% increase in the amount of the gross non-performing loans. There is a likelihood of persistence in loan defaults by borrowers because the majority of Kenyans now find living expenses intolerable due to the sharp increase in most good prices during the same period. Gross non-performing loans may hit the roof in the banking sector if borrowers are not cushioned following the recent adjustment of the CBK rate from 10.5% to 12.5%, an increase of 200 basis points, effective December 5, 2023.

1.2 Research Question

Does monetary policy influence non-performing loans in the banking sector in Kenya?

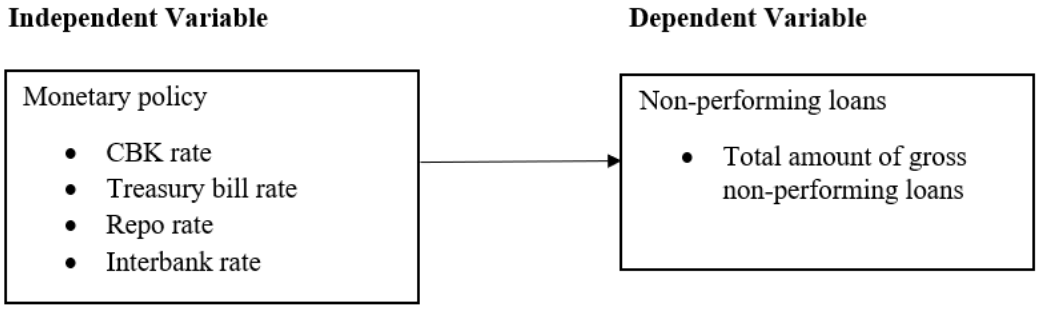

Chart 1. Conceptual framework

2. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 The theory of monetary circuits

Graziani's (1989) framework maintained that a central bank's ability to effectively regulate the amount of money in circulation is limited and that any attempt to do so by limiting bank credit or the monetary base would be at odds with the institution's mandate. According to the model, the central bank is compelled to adopt an accommodating behavior to maintain equilibrium between the supply and demand for money and to view money only as a component of the system's overall liquidity whenever the monetary authority establishes reserve requirements. This means that banks must have unrestricted access to the monetary base to meet the reserve ratio. Due to the central bank's accommodating behavior in carrying out its mandate and the widespread practices in banking systems, the money supply will inevitably rise to meet demand, regardless of the level of interest rates at the time, Keen[8]

The theory of the monetary circuit links the monetary policy and non-performing loans in that the central bank system can employ monetary policy tools to change the amount of loanable money that is available in the market. The lowering of interest rates resulting from the expansionary monetary policy is intended to protect small-scale borrowers from exploitation to promote economic growth, reducing default rates among borrowers and the amount of non-performing loans. While a contraction in monetary policy leads to an increase in interest rates which may increase default rates among borrowers as indicated by Albertazzi & Gambacorta, [9]).

2.2 Empirical Review

Cep, Indra, Ferry, Eka, and Agus [10] used the PMG approach to investigate how macro-prudential regulations and monetary policy affected credit risk in Indonesia. The findings demonstrated that monetary policy had a long-term favorable effect on credit risk. This indicated that a tightening of monetary policy raises the risk of bank credit while in contrast; the monetary policy reduces bank credit risk by being expansive in the short run.

The study conducted by Napari, Ozcan, and Khan [11] intended to quantify the influence of a unionized monetary policy in the West African Monetary Zone (WAMZ) on financial stability as indicated by Ghana's nonperforming loan ratios. In a simplified policy framework, nonperforming loan ratios were modeled as a function of the monetary policy rate and GDP growth rates. The reduced policy parameters were computed using quarterly data from the first quarter of 2008 to the fourth quarter of 2021. The estimated parameters were then used to calculate the impact of a unified monetary policy, which was calculated as a simple mean of member nations' monetary policy rates and a GDP growth-weighted mean of member countries' monetary policy rates. It was discovered from the findings that monetary union did not represent a significant risk to Ghana's financial stability in the case of a role out of a single currency in the WAMZ. Similar findings and conclusions were reached as a robustness check using a LASSO regression to forecast the counterfactual impact of a unionized monetary policy in the WAMZ. This meant that the cost of monetary unification in terms of the magnitude and volatility of nonperforming loan ratios was not significant, and hence member countries needed to speed up the process.

Naili and Lahrichi [12] stated that central bankers concurred that the root cause of the financial sector's hardship during downturns was banks' credit risk, which was primarily exhibited by the quantity of non-performing loans that banks held. Credit risk is impacted by interest rates, which are influenced by the policy rate of the central bank. Reportedly, the policy rate of the central bank has a significant effect on the banking sector. As the rate of reduction in commercial bank lending rates accelerates, lower interest rates also have a greater beneficial effect on economic growth.

There is a positive correlation between the central bank's policy rate and non-performing loans, as pointed out by Mahrous, Samak, and Abdelsalam [13]. Bank risks rise when policy interest rates rise because they also affect the interest rates that the borrower is charged on bank loans. Dang [14] discovered, however, that policy interest rates have a detrimental impact on non-performing loans. According to the findings, banks that encourage low-interest lending to the general population have a major impact on credit risk.

Ameen and Prabheesh [15] investigated the impact of international and domestic monetary policy on bank risk-taking in India, a large emerging market economy. Various panel data regression approaches, such as fixed and random effect models and GMM, were used to analyze annual data from 1999 to 2017. The study discovered that international monetary policy has a considerable impact on Indian banks' risk-taking.

Geng and Zhai [16] observed, in keeping with the earlier studies, that banks take on greater risk when monetary policy is loosened. They estimated monetary policy using the interest rate on deposits in a panel smooth transition regression (PSTR) model. They discovered that interest rates and return on equity (ROE) in banks have a positive association and that the link between interest rates, reserve requirement ratio, and bank risk is nonlinear. Bank risk is not significantly impacted by the reserve requirement ratio. Changes in PMI (threshold level) allow interest rates and reserve requirement ratios to have an impact on bank risk in both high and low PMI regimes.

Using quarterly balance sheet data from 13 Thai banks that have been in operation for the past ten years and an inflation-targeting policy rate,

Kotchanan [17] investigated the impact of monetary policy on bank risk-taking in Thailand. According to this study, there is a positive correlation between bank risk-taking and the policy rate, and the abnormally lengthy low interest rate contributes to the increase in bank risk-taking. Because they are more susceptible to monetary policy changes, medium-sized banks appear to exhibit the highest risk-taking behavior; this is also true for large and small banks.

Espinoza and Prasad [18] examined the relationship between macroeconomic variables and the NPL ratio as an approximation for credit risk in the Gulf Cooperation Council nations concerning the MENA countries and the relationship between monetary policy and economic growth. They made use of dynamic panel data from eighty GCC banks between 1995 and 2008. They also used a VAR model to investigate the feedback impact of large non-performing loans (NPLs) on growth. The NPL ratio's logit transformation is the dependent variable. The non-oil real GDP growth, stock market returns, interest rates, growth in global commerce, the VIX index, and a 1997–1998 dummy for the Asian crisis are the independent variables. As to the panel findings, there is a marginal increase in non-performing loans (NPLs) with higher interest rates, but the NPL ratio decreases with more credit. As per the VAR data, there is a significant relationship between the growth in non-oil and the increase in non-performing loans.

Matemilola [19] aimed to ascertain how monetary policy affected bank lending rates. A stream of financial data covering the period from January 1978 to December 2012 was examined. The results demonstrated that a drop in the monetary market rate (MMR) was accompanied by a more rapid increase in the bank lending rate (BLR). The results also showed that commercial banks are reluctant to raise lending rates, which adds weight to the adverse selection and customer reaction arguments.

In their attempt to determine the effects of the central bank rate on loan portfolio performance, Mutwol and Kubasu [20] found that most respondents strongly agreed that a rise in the central bank discount rate raises market interest rates and bank lending rates, which in turn reduces the size of bank loans. It lowers bank borrowing from other banks and the central bank, which lowers the portfolio of bank loans. It was also observed that the majority of credit officers firmly agreed that the bank interest rate spread and bank loan portfolio is reduced by an increase in the central bank discount rate. The investigation also found no solid evidence connecting rising central bank rates to rising lending interest rates, which lower private investment and consumption spending, lowering output and exerting pressure on prices and loan portfolio performance among Kenya's commercial banks ($p>0.05$).

3. METHODOLOGY

A correlation research design was employed by the study because of its ability to describe the characteristics and relationships between phenomena with accuracy. Monthly secondary data for the Central Bank rate, Interbank rate, Repo rate, Treasury Bills rate, and gross nonperforming ratio was obtained from the Central Bank of Kenya and Bank Supervision reports. The dataset includes balanced monthly data of the banking sector in Kenya spanning from November 2019 to September 2023 resulting in 235 observations.

The following econometric model was used in the study;

$$GNPL_t = \beta_0 + \beta_1 CBR_t + \beta_2 IR_t + \beta_3 RR_t + \beta_4 TBR_t + \varepsilon_t$$

Where:

$GNPL_t$ = Gross non-performing loans over time t
$\beta_0, \beta_1, \beta_2, \beta_3, \beta_4$ = Beta Coefficients
CBR_t = Central Bank Rate over time t
IR_t= Interbank rate over time t
RR_t = Repo Rate over time t
TBR_t = Treasury Bills Rate over time t
ε_t = Error term

4. RESULTS AND DISCUSSION

4.1 Correlation Matrix

A correlation analysis was done to determine whether a relationship existed between independent variables in terms of direction (positive or negative) and strength of correlation. The study adopted the criterion of Akoglu [21] that a correlation coefficient of r = 0.7 and above as a strong correlation, the correlation coefficient of r = 0.4 and < 0.7 was moderately strong while a correlation coefficient of r = 0 and < 0.4 as weak. The variables were also tested to

determine the existence of high multi-collinearity where r > 0.9. The correlation results in Table 1 indicated no existence of multi-collinearity among variables.

4.2 Model Summary

Table 2 results present the model summary. The R-squared for the influence of monetary policy on non-performing loans is 45.5%. The results imply that the independent variable (monetary policy) explains 45.5% of the dependent variable (non-performing loans).

4.3 Analysis of Variance (ANOVA)

Table 3 results of analysis of variance showed that there was a statistically significant difference between monetary policy and the non-performing loans of listed commercial banks in Kenya as indicated by (F (4,46) = 8.76420633, with a P-value of 0.00000308045 which is less than 0.05

The regression model results in Table 4 indicated that Repo rates had a negative and statistically insignificant effect on non-performing loans of listed commercial banks in Kenya as illustrated by a P-value of 0.77874167 which is greater than 0.05. The results also indicated that the inflation rate had a positive and statistically insignificant influence on non-performing loans of listed commercial banks as demonstrated by a P-value of 0.07744937, which is greater than 0.05. The results implied that Repo rates and Inflation rates do not influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio. Further, the CBR rate had a negative and statistically significant influence on non-performing loans of listed commercial banks as exhibited by a P-value of 0.00186001, which is less than 0.05. The interbank rate had a positive and statistically significant influence on non-performing loans as exhibited by a P-value of 0.00000075807, which is less than 0.05. The results inferred that the CBR and interbank rates do influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio.

4.4 Discussion of Findings

The results of the study are consistent with the work of Mahrous, Samak, and Abdelsalam [13] who analyzed the effect of monetary policy on credit risk in the MENA region Countries and discovered a positive correlation between the central bank's policy rate and non-performing loans. They asserted that bank credit risks rise when policy interest rates rise because they also affect the interest rates that the borrower is charged on bank loans.

Table 1. Correlation matrix

	GNPL ratio	Repo rate	CBR rate	Interbank rate	Inflation rate
GNPL ratio	1				
Repo rate	-0.1205	1			
CBR rate	0.309862	-0.29922	1		
Interbank rate	0.553851	-0.18519	0.850829	1	
Inflation rate	0.292467	-0.44102	0.563594	0.413104	1

Table 2. Model summary

Regression Statistics	
Multiple R	0.67449811
R Square	0.4549477
Adjusted R Square	0.40303796
Standard Error	0.55154683
Observations	47

Table 3. Analysis of variance results

	df	SS	MS	F	Significance F
Regression	4	10.6644232	2.666105798	8.76420633	3.08045E-05
Residual	42	12.776564	0.304203906		
Total	**46**	**23.4409872**			

Table 4. Regression coefficients

	Coefficients	Standard Error	t Stat	P-value	Lower 95%	Upper 95%
Intercept	15.0203019	0.86951907	17.27426384	1.075E-20	13.26554136	16.77506
Repo rate	-0.00877416	0.03102926	-0.2827706	0.77874167	-0.071393734	0.053845
CBR rate	-0.50605533	0.15235155	-3.32162898	0.00186001	-0.813513209	-0.1986
Interbank rate	0.3568316	0.06990689	5.104383766	7.5807E-06	0.215753779	0.497909
Inflation rate	0.12702885	0.07018032	1.810035198	0.07744937	-0.014600771	0.268658

The results support the work of Cep, Indra, Ferry, Eka, and Agus [10], who used the PMG approach to investigate how macro-prudential regulations and monetary policy affected credit risk in Indonesia. The findings demonstrated that monetary policy had a long-term favorable effect on credit risk. This indicated that a tightening of monetary policy raises the risk of bank credit while in contrast; the monetary policy reduces bank credit risk by being expansive in the short run [12].

5. CONCLUSION

This study sought to investigate the influence of monetary policy on nonperforming loans of listed commercial banks in Kenya using a multiple regression model. The findings indicated that the Repo rate and inflation rate had a statistically insignificant influence on non-performing loans of listed commercial banks implying that they do not influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio. The results also inferred that the CBR and interbank rates do influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio. The CBR rate had a negative and statistically significant influence on non-performing loans of listed commercial banks while the interbank rate had a positive and statistically significant influence on non-performing loans. The results inferred that the CBR and interbank rates do influence non-performing loans of listed commercial banks in Kenya as measured by the gross non-performing loans ratio.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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