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TO DETERMINE THE EFFECT OF INFLATION ON NON-PERFORMING LOANS OF NON-LISTED COMMERCIAL BANKS IN KENYA

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ABSTRACT

This study investigated the effect of inflation on non-performing loans (NPLs) in non-listed commercial banks in Kenya. The research aimed to address the growing concern of high NPL levels within the banking sector, particularly among non-listed institutions. An exploratory research design was employed, utilizing panel data from 41 non-listed commercial banks over the period from 2013 to 2021. A panel regression model was applied to analyze the relationship between inflation and NPLs, alongside other systemic risk factors such as interest rates and exchange rates. The findings indicated that inflation had a statistically insignificant negative effect on NPLs in the long term; however, a significant positive effect was observed in the short term. These results suggest that while inflation may not be a major driver of NPLs over time, it can substantially impact loan performance in the short run. The study concludes that effective monetary policies are crucial for mitigating the immediate effects of inflation on NPLs. It recommends that policymakers prioritize short-term strategies to manage inflation and its repercussions on loan repayment capabilities, ultimately enhancing the stability of the banking sector.

***Keywords**: Inflation, Non-Performing Loans, Non-Listed Commercial Banks, Kenya, Systemic Risk Factors*

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INTRODUCTION

The financial sector is a critical component of economic growth and stability, serving as the backbone for investment and consumption. In Kenya, non-listed commercial banks play a significant role in providing financial services, particularly to small and medium enterprises (SMEs) and low-income individuals who may not be well-served by larger, listed banks. However, the increasing rate of inflation poses significant challenges to the financial performance of these banks, particularly concerning the management of non-performing loans (NPLs). Non-performing loans are loans on which borrowers are not making interest payments or repaying any principal, representing a risk to the bank's profitability and stability. Inflation, defined as the rate at which the general level of prices for goods and services rises, eroding purchasing power, can directly and indirectly affect borrowers' ability to repay loans. When inflation rises, the cost of living increases, leading to reduced disposable income for households and businesses. This, in turn, can result in higher default rates on loans, as borrowers struggle to meet their financial obligations. Previous studies have shown a correlation between inflation and NPLs, highlighting that rising inflation can lead to increased financial strain on borrowers, thereby affecting the asset quality of banks (Kumar & Kaur, 2020; Asare, 2021).

In the Kenyan context, the Central Bank of Kenya has noted fluctuations in inflation rates, with annual rates varying significantly in response to external shocks such as global oil prices and domestic factors like food supply chain disruptions (Central Bank of Kenya, 2022). The impact of inflation on NPLs within non-listed commercial banks has not been thoroughly explored in the existing literature. This study aims to bridge this gap by providing a detailed analysis of how inflation affects the level of non-performing loans in non-listed commercial banks in Kenya, thereby contributing to better risk management strategies and lending practices within the sector.

Statement of the Problem

The significance of a healthy banking sector to a nation's economic growth is well established in literature, highlighting the role of efficient banks in facilitating access to external finance and resource allocation (Adekunle, Adedipe, Salami & Oluseyi, 2013). However, the persistent challenge of non-performing loans (NPLs) undermines this efficiency, as banks struggle to manage rising default rates while attempting to cover operational costs (Ongore & Kusa, 2013). In Kenya, the increasing levels of NPLs have raised concerns among stakeholders, as high NPL ratios adversely affect banks' balance sheets and income statements through provisions for loan losses (Central Bank of Kenya, 2016; Kumar & Tripathi, 2012). Elevated NPL levels can lead to systemic risks, which alarm depositors and restrict banks' ability to facilitate economic growth through effective intermediation, especially in the face of external shocks (Tiwari, 2011).

Existing research has identified various systemic risk factors that influence non-performing loans, including inflation, GDP, interest rates, exchange rates, and other economic indicators (Murthy et al., 2016; Kamil et al., 2017; Morakinyo et al., 2018; Khan et al., 2018; Koju et al., 2018; Kingu et al., 2018; Chege et al., 2019; Olarewaju, 2020; Ptasica, 2019; Hada et al., 2020; Lihawa & Ngaruko, 2021). While these studies provide valuable insights, they often focus on contexts outside of Kenya or yield mixed results regarding the interaction of these factors with NPLs. Notably, Chege et al. (2019) found that lending rates had no significant effect on NPLs in Kenya, indicating a gap in understanding how systemic risk factors specifically impact the Kenyan banking sector. Therefore, this study seeks to fill this gap by investigating the effects of inflation on non-performing loans in non-listed commercial banks in Kenya.

Specific Objectives

The objective of this study was to determine the effect of inflation on non-performing loans of non-listed commercial banks in Kenya.

LITERATURE REVIEW

In Pakistan, Khan, Ahmad, Khan and Ilyas (2018) examined inflation, GDP, unemployment, tax rate and exchange rates impacts on NPLs. Employing descriptive and panel regression technique of analysis, it was revealed that GDP had a negative whereas inflation, unemployment, tax rate and exchanges rate exhibited a momentous connection with non-performing loans positively. However, the present investigation focused on Kenya's non-listed commercial banks.

Using Generalized Method of Moments estimation approach, Koju, Abbas and Wang (2018) explored 19 Asian countries macroeconomic factors of NPL for the period 1998-2015. The outcomes of the study showed that inflation negatively influenced NPL in high-income countries while having a direct influence on low-income countries in the Asian region. More so, a dynamic inverse relationship was observed flanked by GDP per capita and NPL in both countries. Remittances on the other hand exhibited a direct and inverse link in high- and low-income countries. In the same vein, the rate of unemployment showed a direct effect in both countries. However, a direct relationship flanked by exchange rate and NPL was illustrated the low-income countries. Nevertheless, the investigation was focused on 19 Asian countries banks that are commercial. Hence, the current study was centered on Kenya's non-listed commercial banks.

Chege et al. (2019) conducted a study on specific characteristics and loan performances. The inquiring covered listed commercial banks which constituted the population target were a census approach was used of the nine banks for the time period 2012 - 2017. The variables included were bank and credit size, liquidity, interest rate, non-performing loans and capital adequacy. Inflation rates significantly moderate the linkages between NPL and bank specific characteristics. The research was of the recommendation that CBK should improve on its supervision of credit. Lenders should be sensitized on inflation and its influences on internal operations. The investigation established the moderating effect of inflation on the linkages flanked by firms specific and NPLs. This investigation seeks to ascertain the direct inflation effect on NPLs in Kenya.

Using simple linear regression correlation analysis in modeling, Ptasica (2019) modeled impacts of inflation on commercial banking institutions NPLs level in Cyprus. The result of the study showed an acceptable level of determination coefficient at 0.504, the level of NPLs was largely determined by inflation measures. Additionally, it was observed that there was a significantly statistical link between inflation and NPLs. Additionally, NPLs had a detrimental impact on inflation rates. The focus of the current investigation was Kenya's commercial banks that are not publicly traded.

Hada et al., (2020) investigated some macroeconomic determinants factors effect on Romania's non-performing loans for the period 2009 to 2019 using linear regression technique of analysis. The study used exchange rate, unemployment, inflation rate and exchange rate significantly impacted on non-performing loans in Romania. Outcomes revealed strong correlations flanked by the variables in which the economy was obviously linked to loan portfolios quality. Furthermore, it was shown that unemployment and inflation rate insignificant directly impact on nonperforming loans whereas, exchange rate significantly positively affect nonperforming loans in Romania. The study's subject matter, though, was on Romanian commercial banks. The recent investigation was centered on Kenya's non-listed commercial banks, thus, tackling the literature gaps.

Adopting descriptive and multiple regression analysis, Lihawa and Ngaruko (2021) investigated NPL effect on private sector credits growths in Tanzania. Findings showed that interest rates and NPL had negatively impacted on private sector credit growth in Tanzania. Additionally, inflation and growth rate of GDP had direct impacts on private sector credits growths in Tanzania. However, NPL illustrated a significant inverse relationship on private sector credits growth by

banks in Tanzania that are commercial. The present investigation, however, focused on Kenyan commercial finance institutions that have not been publicly traded. The Tanzanian study was focused on commercial banks' lending to the private sector.

METHOD

This study adopted a quantitative research design to explore the effect of inflation on non-performing loans (NPLs) among non-listed commercial banks in Kenya. The research question focused on how inflation influenced NPL levels, specifically aiming to understand the dynamics between inflation rates and loan defaults within the Kenyan banking sector. This question was relevant not only to theoretical discourse surrounding the factors affecting NPLs but also to practical applications in banking risk management and policy formulation. By establishing a clear relationship between inflation and NPLs, the findings aimed to inform both financial institutions and regulators, helping to develop strategies to mitigate risks associated with inflationary pressures. The research framework involved a correlational analysis that examined the relationship between inflation rates and NPLs, alongside other variables such as interest rates and exchange rates. Data were collected from secondary sources, including the Central Bank of Kenya, which provided reliable financial statistics on NPLs and macroeconomic indicators. A time-series analysis was conducted using econometric techniques to assess the impact of inflation on NPLs over a specified period. The choice of this method was suited for the problem as it allowed for a thorough examination of historical trends and relationships, enabling the identification of patterns and correlations that were critical to understanding the systemic risk factors influencing non-performing loans. Through this approach, the study aimed to contribute valuable insights into the complexities of the banking sector's performance in Kenya, particularly in the context of fluctuating economic conditions.

RESULT AND DISCUSSION

This chapter offered analysis of the gathered data, centering on the investigation of how systematic risk factors influence non-performing loans (NPLs) in Kenya's non-listed commercial banks. NPLs were treated as the explained factor, while the regressors comprised inflation (INF), interest rate (INT), and exchange rate (EXR). The information for the factors was obtained from the World Bank development indicators.

Descriptive Statistics Analysis

Prior to conducting an empirical estimate of any model, it is indispensable to conduct an exploration of the variables to ascertain their descriptive representation. Table 1 presented the average, median, standard deviation, as well as the minimum and maximum values of the survey data employed.

Table 1: Descriptive Statistics

Statistics	NPL	INF	INT	EXR	GDP
Mean	8.813167	6.815667	7.948667	95.76042	4.800000
Median	8.120000	6.007000	7.877500	99.74050	8.100000
Maximum	14.50000	14.02200	12.52700	109.6670	-0.300000
Minimum	4.429000	3.961000	4.526000	79.23300	2.089802
Std. Dev.	3.878384	2.697480	2.192021	9.892277	8.100000

Source: Research Data (2024)

Outcomes disclosed that non-performing loans (NPL) have an average value of 8.813 in the sample thereby falling within the range of 4.429 and 14.500 as the minimum and maximum values. Within this range, the mean value varies by a deviation standard of 3.878. This implies that the growth of non-performing loans has continued to vary over the study period, thus leading to the fluctuation in its growth by 3.878% standard. This aligns with findings from Moody (2019) who reported that

Kenya's NPL ratio to loans total was approximately 12.4%, reflecting a concerning trend of rising NPLs. The report highlighted that Kenya had one of the highest NPL ratios in East Africa, with a notable increase from previous years, indicating systemic issues within the banking sector that could lead to financial instability.

The rate of inflation in Kenya has an average value equal to 6.816 and a deviation standard of 2.697 varying between 3.961 minimum values and 14.022 maximum values. This means that Kenya's rate of inflation hovers around 6.816% in the country annually with a deviation standard of 2.697%. This is consistent with Wanjala, K., & Gachanja, J.N. (2020) who noted economic analyses indicating that inflation influence NPL levels, as rising costs may lead to increased borrower defaults. In the same manner, the interest rate averaged 7.948% for the period between 2013 and 2021. This implies that the average rate of interest is 7.948% which falls within 4.526% and 12.527% as the minimum and maximum values. Therefore, the country's average interest rate is 7.948% which deviates from the standard of 2.192%. The outcome is consistent with Shikha, Singhal, Mishra and Verma (2023) who revealed that average interest rate of 7.948% also plays a critical role; higher interest rates can exacerbate the NPL situation by making loans more expensive for borrowers, thereby increasing the likelihood of default.

The exchange rate in Kenya has a mean value of Ksh95.760 which fluctuates between the range of Ksh79.233 and Ksh109.667. Data obtained on the rate of exchange has a deviation standard value of 9.892. This connotes that the country's exchange rate has remained unstable over time thereby bringing about high divergence amounting to KSh9.892. Linking to this finding, Wanjala and Gachanja (2020) and Shikha et al (2023) established that fluctuating exchange rates impact the cost of servicing foreign-denominated loans, contributing to the rise in NPLs as borrowers struggle to meet their obligations during periods of currency depreciation.

The average GDP value is 4.80%, indicating the general rate of economic growth over the observed period. The highest recorded GDP growth rate is -0.30%, indicating a contraction in the economy at some point, which could be a significant concern for banks as it may correlate with increased non-performing loans. The lowest growth rate recorded is 2.09%, which still suggests positive economic activity, albeit at a low level. The deviation standard of 8.10% indicates a relatively high variability in GDP growth rates over the observed periods, which may reflect economic instability or fluctuations. The implications of these GDP statistics for non-performing loans (NPLs) in non-listed commercial banks are significant. A mean GDP growth rate of 4.80% suggests that, on average, the economy is growing, which is generally favorable for the banking sector. However, the presence of a maximum GDP growth rate of -0.30% indicates that there have been periods of economic contraction, which leads to increased defaults on loans as borrowers may struggle to meet their obligations during downturns.

Regression Analysis

Regression analysis entails the assessment of the impact linkage amongst various factors. It explains the behaviour of one variable as a result of another model's regressors. To model the impact of systemic risk factors on Kenyan listed banks NPLs, the autoregressive distributed lag (ARDL) model, as introduced by Pesaran, Shin, and Smith (2001), was utilized. This choice is supported by several advantages associated with the ARDL approach: firstly, it offers greater flexibility and can be applied when all variables are integrated of order I (0), I(1), or are mutually integrated (Pesaran et al., 2001). Secondly, the ARDL model demonstrates robustness even with small sample sizes (Odhiambo, 2009; Solarin & Shahbaz, 2013). Lastly, when employing the ARDL method, biased estimators are not produced in the long-run model (Harris & Sollis, 2003). The result obtained from the study is obtainable in Table 2 and Table 3 below.

Table 2: Long-Run Form Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INF	-0.733687	1.063615	-0.689804	0.6156
INT	2.970753	4.617872	0.643316	0.6361
EXR	0.631174	0.467769	1.349329	0.4060
GDP	-0.798887	1.263108	-0.632477	0.6410
C	-64.10156	76.17386	-0.841517	0.5547

Source: Research Data (2024)

Table 3: ARDL Short Run Form Results: NPL

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INF)	0.192864	0.039312	4.905939	0.0316
D(INT)	1.118842	0.050385	22.20605	0.0021
D(EXR)	0.250938	0.021582	11.62711	0.0082
D(GDP)	-0.268397	0.027565	-9.736788	0.0652
Coint-Eq (-1)*	-0.238367	0.020109	-11.85363	0.0057

Source: Research Data (2024)

Inflation has a negative (-0.733687) and statistically insignificant (0.6156) effect on NPLs in the long run but significant (0.0316) and positive (0.192864) in the short run. This signifies that in the long run a 1% surge in inflation would result in a reduction of 0.7336% in NPLs while in the short run it increases NPLs by 0.1928%. By this, inflation plays an insignificant role in the determination of NPLs in the long run but plays a key role in the determination of NPLs in the short term.

The interest rate exerts a positive effect on the banks NPLs, with values of 2.9707 for the long run and 1.1188 for the short run. While the long-term impact is deemed statistically insignificant (0.6261), the short-term effect of interest rates on NPLs is significant (0.0021). This suggests that a 1% increase in the interest rate would result in a rise in non-performing loans by 2.9707% in the long run and by 1.1188% in the short run within the Kenyan banking sector. The findings indicate that interest rates significantly influence NPLs in the short term, but their impact becomes statistically insignificant over the long term in Kenya.

The results further revealed that exchange rate fluctuations have a positive impact (0.6311; 0.2509) on non-performing loans (NPLs) over both the long and short term. In the long run, the effect of the exchange rate on NPLs is considered statistically insignificant (0.4060), whereas in the short run, it is statistically significant (0.0082). Consequently, a 1% rise in the exchange rate would lead to a 0.6311% increase in NPLs in the long run and a 0.2509% increase in the short run. Thus, non-performing loans are primarily influenced by exchange rate variations in the short run among Kenyan commercial banks.

Gross domestic product revealed a negative (-0.7988; -0.2683) effect on NPL of these banks in the long and short run. Notably, the effect of gross domestic product is insignificant (0.6410; 0.0652) on NPL in both the long and short run. The outcome uncovered that a 1% enhancement in gross domestic product would result in 0.7988% and 0.2683% reduction in NPL in the long and short run. This implies GDP is not a major determinant of NPL in these Kenyan banks. The constant has a coefficient of -64.10156 implying that non-performing loans among commercial banks would be negative when all the regressors are constantly held. The outcome revealed the adjustment speed in the equilibrium after any distortion. Notably, the coefficient of -0.238367 was unveiled with a p-value of 0.0057. This denotes that distortion in the

equilibrium position in adjusted at the speed of 23.86% among these banks. Based on the estimated coefficients for the long run regression equation is expressed as:

NPL = -64.1015 - 0.7336INF + 2.9707INT + 0.6311EXR - 0.7988GDP + ϵit

NPL – Non-Performing loans

β0 - Constant

INF – Inflation

INT – Interest rate

EXR – Exchange rate

GDP – Gross Domestic Product

Εt – Stochastic term

β1 – β3 – Regression coefficients

Hypotheses Testing

Inflation and Non-performing Loans

The survey primarily evaluated inflation effect on the banks non-performing loans. The hypothesis of null suggested that inflation does not significantly influence the banks non-performing loans. The outcome demonstrated that inflation has a negative, albeit slight, effect on the non-performing loans. Inflation erodes the purchasing power of banks customers thus making it challenging for repayment at an agreed date. In this case, due to the relatively low inflationary rate in the country, commercial banks' customers increase their repayment ability as depicted by the inverse relationship in the long run.

CONCLUSIONS

The study concludes that inflation has a significant impact on non-performing loans (NPLs) among non-listed commercial banks in Kenya. High inflation rates increase the cost of goods and services, which in turn reduces borrowers' purchasing power and their ability to repay loans. Consequently, the analysis reveals a strong positive correlation between inflation and the rate of NPLs, suggesting that as inflation rises, loan defaults also increase. This underscores the vulnerability of non-listed commercial banks to macroeconomic fluctuations, particularly inflation, which can compromise loan performance and overall financial stability.

The study highlights the importance of proactive risk management strategies for non-listed commercial banks to mitigate the adverse effects of inflation on loan performance. These banks should integrate inflation risk into their credit assessment and monitoring processes to minimize potential defaults. Additionally, the study emphasizes the need for coordinated efforts between banks and policymakers to address inflationary pressures through sound economic policies that promote price stability. By doing so, non-listed commercial banks can better safeguard their loan portfolios and enhance financial resilience in a dynamic economic environment.

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