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Macroeconomic Factors and Financial Stability of Commercial Banks in Rwanda

Nsengiyumva Eric, Malgit Amos Akims, PhD and Gabriel Kamau

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of Commercial Banks in Rwanda**



¹Nsengiyumva Eric
Mount Kigali University, Rwanda



²Malgit Amos Akims, PhD
Mount Kigali University, Rwanda



³Gabriel Kamau
Mount Kigali University, Rwanda

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Abstract

Purpose: The general objective of this study is to assess the influence of macroeconomic factors on the financial stability of commercial banks in Rwanda. The study is grounded on theories such as the Interest Rates Theory, Inflation and Deflation Theory, the Liquidity Preference and the Financial Intermediation Theory.

Methodology: A descriptive research design was employed, focusing on nine commercial banks in Rwanda operating between 2015 and 2023. Explanatory research design was adopted.

Findings: Based on the panel regression analysis, it was established that interest rates, exchange rates and inflation had significant effect on financial stability of commercial banks in Rwanda.

Unique Contribution to Theory, Practice and Policy: The study recommends that the National Bank of Rwanda should adopt a gradual but properly calibrated interest rate policy that is required to solidify bank intermediation spreads, as well as the need to maintain cheap credit accessibility. In particular, regular reviews of the policy rate that are in synch with liquidity and risk perceptions in the banking sector should be embedded so that rate adjustments remain supportive of stability without unnecessarily hindering private sector lending.

Keywords: *Exchange Rates, Interest Rates, Inflation, Financial Stability*

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INTRODUCTION

Bedrock of economic progress as well as long-term growth is financial stability, especially for commercial banks that act as key intermediaries within the financial system. The ability of commercial banks to remain stable despite macroeconomic, regulatory, and operational challenges is essential for economic growth, poverty reduction, and societal well-being (Blinder, 2023). Historically, financial stability has been achieved through robust regulatory frameworks, effective risk management practices, and macroeconomic stability (Mishkin, 2022). Commercial banks are vital to monetary transmission because they link central-bank policy with private-sector investment and household consumption. When macroeconomic conditions deteriorate through inflationary pressures, exchange-rate volatility, or interest rate hikes commercial banks face declining loan performance, reduced profitability, and rising credit risk. Therefore, studying how macroeconomic variables interact with bank stability is essential for ensuring sustainable growth.

Many African banks are struggling with rising levels of non-performing loans, eroding profitability and capital buffers. Exchange rate fluctuations expose banks (especially those with large assets in foreign currencies) to exchange rate risk. Despite these challenges, significant progress has been made. For example, the adoption of an advanced regulatory framework in South Africa has made its commercial banking sector one of the most stable in the region (Nkobe & Bryksova, 2023). The establishment of a deposit insurance scheme, the launch of online banking, and regional efforts to standardize financial laws are some of the steps being taken to improve financial stability in Africa (Chirwa& Odhiambo, 2023). In many African economies, rising levels of non-performing loans (NPLs) and currency depreciation remain persistent threats. When local currencies weaken, banks with large foreign-currency exposures face valuation losses, while inflationary surges increase operational costs. Such macroeconomic imbalances erode capital buffers and discourage investment, linking monetary stability directly to banking health.

Since the early 2000s, Rwanda's commercial banks have experienced a major shift in financial stability, driven by economic reforms, modernization efforts, and financial inclusion initiatives. Commercial banks cater to a broad spectrum of the population, including the underbanked rural areas. Over the years, Rwandan commercial banks have expanded their service offerings to include mobile banking, digital payments, and more accessible credit products, contributing to the country's relatively high financial inclusion rates (BNR, 2023). Since they own the majority of the financial sector's assets, commercial banks continue to dominate Rwanda's financial system. As of 2024, the country has 9 commercial banks operating, including large domestic banks like Bank of Kigali and I&M Bank Rwanda, as well as international players such as Equity Bank Rwanda Plc, KCB Rwanda and GT Bank. Furthermore, these banks are instrumental in funding key economic sectors, including construction, services, and agriculture, in addition to their support of SMEs (BNR, 2024).

Macroeconomic variables are critical determinants that shape a country's economic position both regionally and globally and they include key factors such as economic output, unemployment rates, inflation, savings, and investment levels are critical macroeconomic determinants that exert a substantial influence on financial stability and overall economic performance (Wambua, 2018). A multi-faceted approach designed to achieve financial steadiness goals was presented by (Klingelhofer & Sun, 2019). The researchers stressed that macroeconomic variables can be strong instruments to maintain financial stability without triggering a downturn in the economy if they are properly controlled. According to Hanif, Ali,

Asghar and Farhan (2024) inflation and exchange rate volatility significantly impact financial stability. Inflation erodes purchasing power, reduces demand, and increases production costs, affecting profitability. In addition, exchange rate instability deters foreign investment, while higher rates hinder international trade, negatively affecting business performance (Mwenda, 2023).

However, Rwanda's commercial banks continue to operate within a dynamic and sometimes volatile macroeconomic environment. Rising inflation, periodic currency depreciation, and external shocks such as those arising from global economic slowdowns, regional conflicts, or commodity price fluctuations pose ongoing challenges to profitability and solvency (IMF, 2023). The ability of banks to navigate these challenges effectively depends on their capitalization, governance structures, and risk management capacity (Nkobe & Bryksova, 2023). In this context, macroeconomic stability becomes not only a policy goal but also a necessary condition for the sustained financial health of commercial banks (Chirwa & Odhiambo, 2023). Understanding the interplay between external macroeconomic forces and internal bank-specific indicators such as profitability, asset quality, and capital adequacy is therefore essential. Insights derived from this analysis enable policymakers and regulators to design targeted monetary and fiscal policies that promote both financial and macroeconomic stability (Onyancha & Muturi, 2023). For instance, effective interest rate management can balance the cost of credit while containing inflationary pressures and exchange rate stabilization policies can safeguard banks' foreign-currency portfolios.

Rwandan commercial banks have experienced impressive growth and modernization, yet macroeconomic pressures remain significant. Between 2018 and 2022, average return on assets declined from 2.5% to 1.7%, while return on equity dropped from 15% to 10.8%. Non-performing loan rose from 6.2% in 2019 to 7.6% in 2021, reflecting heightened credit risk. The country's inflation rate also surged from 4.5% in 2020 to 8.7% in 2022, largely driven by energy and food price (IMF, 2023). During the same period, the exchange rate depreciated steadily against the US dollar, further impacting foreign-currency-denominated assets and liabilities. These figures reveal how macroeconomic fluctuations can directly affect banking performance and financial stability in Rwanda.

Despite regulatory improvements and digital banking expansion, limited empirical evidence exists on how macroeconomic variables jointly affect bank solvency in Rwanda using an integrated stability measure such as the Z-score. Most previous local studies focused narrowly on profitability indicators like ROA and ROE without linking them to solvency dynamics (Ullah *et al.*, 2024; Argjira *et al.*, 2024). This research bridges that gap by analyzing the combined effects of inflation, interest rates, exchange rates, and GDP growth on Rwandan banks' financial stability between 2015 and 2023.

Problem Statement

Commercial banks in Rwanda play a key function in promoting economic advancement through credit intermediation, deposit mobilization, and financial inclusion. However, in recent years, they have become increasingly vulnerable to adverse macroeconomic conditions, including interest rate volatility, high inflation, exchange rate volatility, and GDP growth volatility (BNR, 2023). These macroeconomic shocks have put enormous pressure on key financial stability indicators such as bank's profitability, liquidity, and capital adequacy (Hanif, K& Ullah, 2024). In 2022, Rwanda's non-performing loan to debt ratio reached 7.4%, exceeding the regulatory threshold of 5%. At the same time, the inflation rate also reached 8%. This situation has

significantly reduced the repayment capacity of borrowers and the value of assets (BNR, 2023). These factors have reduced bank profits, reduced interest margins, and increased the risk of capital outflows. Key financial indicators including return on asset, return on equity, and capital adequacy ratio are showing signs of deterioration, raising concerns about the sustainability of commercial banks (IMF, 2023).

Although regional and global studies have confirmed the influence of macroeconomic variables on bank's financial stability (Atieno & Odundo, 2023; Argjira, Cani & Elezi, 2024). Many existing studies focus only on profitability or lending efficiency, without considering comprehensive risk indicators such as Z-score (Anginer & Demirguc-Kunt, 2018). Furthermore, most of the literature on Rwanda takes a descriptive or theoretical approach and lacks advanced empirical analysis such as panel data modeling, which is crucial to uncover the dynamic relationship between macroeconomic factors and financial stability (Ullah, Zaman & Khan, 2024). Given Rwanda's unique post-conflict recovery situation, evolving regulatory environment, and nascent stage of its banking sector, it is not sufficient to rely solely on general international academic research (Munyaneza, 2020). This study aims to address these shortcomings by examining the influence of interest rates, inflation, exchange rates and GDP growth on financial stability of all Rwandan commercial banks, using Z-score and traditional performance indicators such as return on assets, return on equity and capital adequacy.

Objectives of the Study

The study's aims are categorized into broader general objectives and more detailed, focused objectives.

General Objective

The general objective of the study is to establish the effect of macroeconomic variables on financial stability of commercial banks in Rwanda.

Specific Objective

- i. To assess the effect of interest rates on financial stability of commercial banks in Rwanda.
- ii. To examine the effect of inflation on financial stability of commercial banks in Rwanda..
- iii. To determine the effect of exchange rates on financial stability of commercial banks in Rwanda.

Hypotheses of the Study

H₀₁: Interest rates have no significant effect on financial stability of commercial banks in Rwanda.

H₀₂: Inflation has no significant effect on financial stability of commercial banks in Rwanda.

H₀₃: Exchange rates have no significant effect on financial stability of commercial banks in Rwanda.

Theoretical Review

The Theory of Inflation and Deflation has its roots from Fisher (1933) and Keynes (1936). Fisher (1933) explains how deflation exacerbates economic downturns by increasing the real value of debt, leading to reduced spending and investment. Keynes (1936) underscored the significance of total demand in shaping inflationary and deflationary trends. Inflation happens when demand exceeds supply, driving prices up. Deflation occurs when demand drops, causing

prices to fall. Both phenomena have profound implications for financial stability, as inflation erodes purchasing power and deflation increases the burden of debt, potentially leading to economic stagnation or crises. The Theory of Inflation and Deflation is relevant to this research because it emphasizes how important macroeconomic variables are to preserving financial stability.

Keynes (1936) postulated the liquidity preference theory, which posits that the main factor influencing interest rates is the interplay between the monetary flow and the desire for solvency. It draws attention to how liquid assets like cash tend to be preferred over less liquid options, like bonds or other investments. Keynes argued that individuals and institutions demand money for three primary motives: the transactions motive (for everyday spending needs), the precautionary motive (to prepare for unexpected costs) and the speculative motive (to capitalize on potential investment opportunities in the future). The theory suggests that interest rates act as the "cost" individuals incur to give up their liquid assets. Demand for money tends to increase when interest rates are lower and decrease when they are higher. Critics, the rise in long-term interest rates, attributing it to increased time preference rather than solely inflation expectations. He suggests that a higher preference for current consumption leads to higher interest rates over time (Shostak, 2025).

Diamond (1984) introduced the financial intermediation theory explaining that the core role of commercial banks is to connect those with surplus funds to those needing them. It highlights that these banks serve as the main external funding sources for enterprises, along with other financial institutions. Consequently, the theory delivers reliable frameworks for understanding the transactions managed by financial intermediaries, offering a basis for addressing key issues in banking policy. According to Fama (2022), financial intermediaries, particularly commercial banks, mobilize savings and efficiently allocate capital for investment. However, Macroeconomic variables like GDP growth, interest rates, and inflation have a significant influence on the structure of this mechanism. When inflation is high, banks may struggle to attract deposits, as savers seek alternative investments offering higher returns. However, when GDP rises, so does the demand for loans, which can boost banks' financial stability and profitability (Chirwa and Odhiambo, 2023).

The integration of these theories provides the conceptual foundation for the empirical model. The Inflation/Deflation Theory justifies including inflation as a determinant of profitability and capital erosion. The Liquidity Preference Theory supports interest rates as a key macroeconomic driver of financial stability through their impact on intermediation margins. The Financial Intermediation Theory underscores capitalization and asset quality captured in the Z-score as mediators of macroeconomic shocks. Thus, the empirical model evaluates whether variations in inflation, interest rates, exchange rates, and GDP growth jointly influence banks' Z-scores, which represent their solvency distance

Empirical Review

The subsequent section offers a critical analysis of empirical research examining the relationship between macroeconomic factors and commercial bank's financial stability, with the purpose of pinpointing areas where further research is needed and delineating the manner in which this study augmented the existing scholarly literature.

Interest Rates and Financial Stability

In their study, Otieno, Anyuki, and Musa (2021) investigated how lending interest rates affected Kenyan SMEs' performance ratings. They used a simple linear regression model to evaluate the association and took a descriptive research method. The research targeted small business owners and financial institution managers within Nairobi's Central Business District (CBD), the country's primary economic hub. The research demonstrated a clear and significant association amongst lending interest rates with SME performance, emphasizing critical impact of changes in interest rates on the operational success of these businesses.

Ihegboro *et al.*, (2022) examined how interest rates affected Nigerian deposit money banks' performance from 2010 to 2019. Total assets, total liabilities, and total deposits were used to assess the performance of banks, while interest rates were represented by the CBN's monetary policy rate. OLS regression was used to examine the link between interest rates and total assets, liabilities, and deposits, revealing a statistically significant direct effect of interest rates on total assets.

Sarfo-Kantanka *et al.* (2022) sought to determine how interest rate changes affected bank profitability. Understanding how interest rate changes impacted bank profitability between 2008 and 2019 and quantifying the extent of this impact within that time frame were the main goals of the study. It adopted an explanatory research framework with a quantitative methodology, drawing data from GCB Bank Plc's Annual Financial Reports. The Bank of Ghana's monthly monetary interest rates from 2008 to 2019 were analyzed along with key performance indicators. The study combined inferential methods like multiple regression with descriptive statistics like means, frequencies, and standard deviations. The findings showed that interest rate changes significantly impacted both profitability metrics, which in turn shaped financial institutions' performance.

Merko and Habili (2023) examined how inflation, interest rates, and exchange rates affected Albanian commercial banks' performance. Their study, which used monthly data from 2015 to 2022 from the Bank of Albania and INSTAT, used a multiple regression model to examine the connection between ROA and the macroeconomic variables indicated above. The results showed that interest rate changes had a major effect on ROA, underscoring their critical function in assessing bank performance.

The research conducted by O'Donnell, Shannon, and Sheehan (2024) aimed to assess the efficacy of central bank interventions during the Covid-19 crisis by employing a quantitative event study methodology, they examined the impact of 188 monetary policy announcements on banking stock performance in China, the United States, and Europe within a five-day timeframe. Their findings revealed that adjustments in interest rates resulted in adverse abnormal returns for the banking sector in the United States.

Inflation and Financial Stability

Maudy, Andriana, and Widiyanti's (2024) study sought to evaluate how effectiveness and price inflation affected the financial stability of commercial banks in the ASEAN-5 nations between 2013 and 2023. Employing panel data regression analysis on a sample of 133 banks, selected through purposive sampling. The research revealed that efficiency, as represented by the BOPO ratio, exerted a statistically significant positive influence on financial stability, as measured by the z-score. Conversely, efficiency demonstrated a statistically significant negative impact on stability, as measured by non-performing loans (NPL). Furthermore, inflation was found to have

a statistically significant negative effect on financial stability, as indicated by the z-score, whereas its impact on stability as measured by NPL was negative but statistically insignificant.

A study by Ullah, Ullah, and Zaman (2024) looked at how macroeconomic factors and governance affected financial stability in a sample of 122 developed and developing market economies. Their study used a wide range of characteristics to create a financial stability index (FSI) using data from 2013 to 2020. Utilizing a two-step system Generalized Method of Moments (GMM) approach, with robustness tests performed using Driscoll-Kraay (D-K) regression. The findings showed that financial stability was negatively and statistically insignificantly impacted by inflation.

Ali, Chawki, and Hassan (2024) empirically examine how inflationary concerns and shocks affect the stability of banking sectors using dynamic Generalized Method of Moments (GMM) models. It analyzed data from 188 banks operating across 14 Middle Eastern and North African (MENA) economies between 1999 and 2021. The study revealed that elevated inflation significantly undermines bank financial stability and exacerbates credit risk within the banking sector. These findings highlight the adverse consequences of inflationary pressures on the health and resilience of financial institutions.

The study by Argjira, Murat, and Luljeta (2024) investigated how inflation affected the OECD countries' banking industries, which are essential to the stability of the world economy. Recognizing the substantial macroeconomic factor's influence, particularly inflation, on the financial sector's performance a critical determinant of sustainable economic growth—this study undertook an investigation into the impact of inflation on the financial industry's growth trajectory. The researchers employed a thorough technique that includes both static and dynamic panel regression models to analyze data from 38 OECD nations between 2002 and 2021. The results demonstrated the deleterious consequences of growing inflation on industry performance by continuously demonstrating a negative link between inflation and important banking sector measures.

Exchange Rates and Financial Stability

Akims, Omagwa and Mungai (2020) investigated the connection between Nigerian commercial banks' return on assets (ROA) and currency rates between 2010–2017. The research adopted a causal design, chosen for its structured, quantitative, and preplanned nature, and was guided by the positivism doctrine. Utilizing purposive sampling, the research concentrated on seventeen commercial financial institutions that were then fully active in Nigeria. However, only fifteen banks were included because of problems with data availability. Panel data analysis, which incorporates both temporal and cross-sectional elements, was utilized. The analysis's conclusion showed that the return on assets of commercial institutions is significantly affected by currency rates.

The study by Njagi and Nzai (2022) assessed how the East African Community's (EAC) commercial banks' profitability was impacted by changes in exchange rates. Utilizing an explanatory research design, the study was theoretically based on monetary theory and the theory of profit maximization. Data from Central Banks and the World Bank, covering the period from 2000 to 2020, were analyzed to fulfill the study's aims. The panel series data were analyzed using a panel estimating technique. This suggests that while exchange rate impacts profitability, its effect is not strongly pronounced.

Okosu (2022) evaluated the effect of currency rates on Nigerian financial security over a 40-year period, from 1981 to 2020. Grounded in the Portfolio Balance Theory of exchange rates, Annual time-series data was employed in the study, sourced from the Central Bank of Nigeria's Annual Statistical Bulletins and the World Bank's National Accounts. Preliminary statistical analysis indicated that all variables were non-stationary at their initial levels, even at a 1% significance level. The results of data analysis using the Structural Vector Error Correction Model (SVEM) indicated that the impact of exchange rates on financial stability depends on the stage of the economic cycle.

Owolabi *et al.* (2024) investigated the relationship between exchange rates and Nigerian banks' profitability between 2013 and 2022, with a particular emphasis on First Bank Plc's Lagos and Ondo branches. The research adopted a descriptive methodology and a cross-sectional design to analyze the data. Questionnaires were adopted to collect data and measured through a structured 5-point Likert scale. The Pearson correlation model was applied to a sample of 146, chosen from a target population of 250, and the Taro-Yamane method was used to determine the sample size. Hypothesis testing revealed significant relationships and impacts indicating strong statistical significance. The study concluded that exchange rates significantly affect bank profitability.

A study by Atieno *et al.*, (2024) evaluated the effect of exchange rate volatility on the East African Community's (EAC) commercial banks' financial stability. The study's design was underpinned by monetary theory and profit maximization theory. Panel estimation methods were employed to analyze data from the World Bank and Central Bank spanning the years 2000 to 2020. The results of the study indicated that the fluctuation of exchange rates poses a threat to the financial performance of commercial banks within East African Community (EAC). Specifically, the results showed that exchange rate changes had a slight but negative effect on bank performance over the examined period, as indicated by Return on Assets (ROA).

While many studies (e.g., Hanif *et al.*, 2024; Atieno & Odundo, 2023; Merko & Habili' 2023) explore macroeconomic determinants of financial stability in Asia and East Africa, few have focused on Rwanda's unique banking context using a panel-based Z-score approach. However, significant research gaps remained. Firstly, Prior studies in Rwanda largely used profitability indicators (ROA, ROE) or NPL ratios, ignoring integrated solvency metrics like the Z-score that combine earnings and capitalization effects. In addition, Evidence from foreign studies can not be generalized to Rwanda's unique financial ecosystem characterized by high concentration, digital transformation, and limited capital-market depth. Moreover, few analyses have examined the simultaneous influence of interest rates, inflation, exchange rates, and GDP growth on bank stability using panel regression methods. This study fills these gaps by integrating macroeconomic factors with a composite financial stability measure.

Conceptually, the model integrates the theoretical insights of Keynesian Liquidity Preference, Fisher's Inflation-Deflation dynamics, and Diamond's Financial Intermediation roles to explain how macroeconomic variables transmit through banking channels to affect financial stability. The Z-score operationalizes these theoretical linkages empirically, allowing quantification of resilience against macro shocks.

METHODOLOGY

In order to examine the connections between macroeconomic factors and financial stability of Rwandan commercial banks, this study employed explanatory research design.

The empirical model is as follows:

$$FNS_{it} = \beta_0 + \beta_1 INR_{it} + \beta_2 INF_{it} + \beta_3 EXR_t + \beta_4 GDP_t + \varepsilon_{it}$$

Where:

$$FNS = \text{Financial Stability (z - score)} = \frac{ROA + E/A}{\delta(ROA)}$$

INR= Interest rate (bank lending rates)

IFR= Inflation rate (consumer price index)

EXR= Exchange Rate (nominal exchange rate)

GDP= Gross Domestic Product (GDP growth rate)

ROA= Return on Asset

E= Equity

A= Asset

δ = Standard Deviation

t= Time Scope

i= Bank

β_0 = constant term

β_1 to β_4 = Coefficients of independent variables

ε = Error term.

FINDINGS

Descriptive Analysis

This study obtained both measures of central tendency and dispersion, thus signifying centrality and variance of the data around the mean alongside the minimum and maximum values of the data.

Table 1: Descriptive Results

Variable	Obs	Mean	Std. Dev.	Min	Max
Financial Stability	81	12.07963	5.595685	5.82	28.05
Interest Rate	81	16.43222	.41833	15.72	17.17
Inflation Rate	81	5.925556	4.791034	.83	14.03
Exchange Rate	81	913.5111	127.2975	719.9	1160.1

Source: Study Data (2025)

Table 1 shows a mean standard of 12.07963 of financial stability with a deviation of 5.595685 standard. These outcomes imply that the financial stability of the commercial banks in Rwanda is at a moderate level. The 5.595685 standard deviation, however, shows that the variability is large on average, implying that the financial stability of the banks varies significantly across the various banks, signifying non-uniformity in the stability of the banks. With the smallest and the largest financial stability being 5.82 and 28.05, respectively, this presents the range within which stability pervades in the banking sector, noting that some of the banks have small stability compared to others, demonstrating the strength of the banks during the studied period. With this, the National Bank of Rwanda (2023) observed that the banking system in the country has

been showing a high degree of resilience despite fluctuation in the macroeconomic environment, especially due to prudential regulations and risk-based supervision. The findings further unveiled a mean interest rate of 16.43222 and the standard deviation is 0.41833. This small variance means that interest rate variations over the samples tend to be small, demonstrating the stability of the lending environment. This was indicated by the least value of 15.72 and the highest of 17.17, which means that the interest rates were bound narrowly. Predictability in the interest rates is essential in expanding credit without imperiling the soundness of lending institutions. The findings are consistent with Mbabazi and Niyibizi (2020), who argued that stable interest rates that are not excessive or unpredictable promote financial sector stability through the minimisation of risks in the form of credit defaults.

Inflation rate demonstrates a mean of 5.925556 and a 4.791034 standard deviation. The elevated standard deviation shows there is a large degree of variability in the inflation, which affects the financial stability of the banks differently. The lowest value was 0.83 and these were the times there was minimal inflation. These fluctuations have the potential to weaken a bank's balance sheet due to the impact of asset value and the effect on loan recoveries. According to evidence provided by the International Monetary Fund (2022), it has been found that global commodity shocks also contributed to the inflationary pressures in Rwanda and this has the potential to negatively affect the long-term stability of the financial institutions. The outcome of the mean exchange rate provided a value of 913.5111 and a deviation of 127.2975 standard deviations. This fair range of variability represents significant fluctuation in the Rwandan franc vis-à-vis significant currencies comparatively. Values ranging as low as 719.9 and a high of 1160.1 indicate that foreign exchange risks hit commercial banks, particularly those exposing themselves to foreign currency as part of lending operations and trade finance. The outcome aligns with the findings of Ndungu (2019), who stated that exchange rate volatility contributes much to financial stability within the East African economies in the sense that it directly impacts the liquidity and the credit exposure of commercial banks.

Panel Regression Analysis

Panel regression analysis was carried out and the estimation was based on the random effect model as guided by the hausman specification test. The outcomes from the regression analysis are presented in Table 2.

Table 2: Panel Regression Results

Financial Stability	Coef.	Robust Std. Err.	Z	P>z	[95% Conf.	Interval]
Interest Rate	.2804166	.1112929	2.52	0.012	.0622866	.4985466
Inflation Rate	-.1370175	.0203777	-6.72	0.000	-.176957	-.0970779
Exchange Rate	.0100242	.0016241	6.17	0.000	.0068411	.0132073
_cons	-1.208113	1.439283	-0.84	0.401	-4.029056	1.612831
R-Square	0.7705					
Wald chi2(4)	523.07					
Prob> chi2	0.0000					

Source: Study Data (2025)

The outcome depicted in Table 2 presents a coefficient of the constant term as -1.2081, which presents the estimated level of financial stability in the case where all the macroeconomic factors are at zero level to the sample of commercial banks in Rwanda. Constant term is insignificant (p-value = 0.401), suggesting that the situation before the macroeconomic factors

did not make significant changes in the conditions of stability. The R-squared is 0.7705, which approximately suggests that the macroeconomic factors that have been used in the regression model are able to explain around 77.05 per cent of the variance in the financial stability of commercial banks in Rwanda. Also, the set p-value of 0.0000 shows that the overall Wald chi-square value of 523.07 is significant. These results indicate the significant effect of macroeconomic factors (interest rates, inflation, exchange rates, and gross domestic product growth) on the financial stability of commercial banks in Rwanda.

Discussion

The result indicates that interest rate has a significant positive effect on the financial stability of commercial banking institutions, with a coefficient of 0.2804 (p-value = 0.012). This is to the effect that a one unit variance in interest rate is calculated to arise in financial stability by approximately 0.280 units. This gives a reasonable indication to reject the null. It is thus inferred that the interest rate has a substantial influence that is positively related to the financial stability of commercial banks in Rwanda, meaning that any changes affect lending rates and policy rates are key determinants of financial stability in the banking system. This could be that a rise in policy rates could boost the intermediation margins and risk pricing in the Rwandan context, thus helping cushion solvency positions of banks; however, the general literature warns against the possibility that increases in policy rates transfer valuation and funding shocks to banks. Supporting the existence of a large interest rate performance nexus is consistent with other literature that has found large interest rate effects on bank performance, like Sarfo-Kantanka *et al.* (2022).

The effect of inflation is reflected to be negative and statistically significant, with a coefficient being illustrated at -0.1370 (p-value = 0.000). This is interpreted to mean that an increase in inflation by a unit has the effect of a corresponding decrease in the financial stability of Rwandan commercial banks by 0.137 units. With this outcome, the end result will be that the null hypothesis will be rejected in favour of the alternative. Based on this, it can be concluded that inflation negatively affects financial stability, which implies that inflating the prices weakens the strength of balances and the banks' longer-term stability levels in Rwanda. The result suggests that inflationary pressures dilute financial assets, increase credit risk due to the pressure, the default risks increase and reduce bank capital in real terms, thus weakening stability. These findings are in line with the findings of Ali, Chawki and Hassan (2024), that revealed that inflation has a severe negative impact on the stability of banks in MENA countries, and Maudy, Andriana and Widiyanti (2024) that also reported a negative impact on the stability of ASEAN5 banks. In contrast, Ullah, Ullah and Zaman (2024) discovered that the effect of inflation, although unfavourable, was not significant at all statistically based on a large global sample, thus softening the argument of universal applicability. According to Nkurunziza and Munyaneza (2021), in the Rwandan case, inflation impacted commercial banks negatively, due to destabilising their financial performance, which can be equal to the destabilising effect indicated in the present analysis.

The output of the exchange rate demonstrates a positive effect and reaches the statistically significant level, the coefficient equals 0.0100 (p-value=0.000). This shows that when the measure of the exchange rate improves by 1 unit, financial stability will increase by 0.010. This observation would require us to reject the null hypothesis and to accept the alternative. The conclusion reached is that the exchange rate changes have exerted significant and positive impacts on the financial stability of commercial banks in Rwanda, thus forming critical macroeconomic factors to banking resilience in the country. This optimistic correlation can be

due to translation benefits on foreign-currency assets, a rise in competitiveness of internationally-focused clients, or an effective control of foreign-exchange exposures by banks in Rwanda. The findings align with the findings of Akims, Omagwa and Mungai (2020) and Owolabi *et al.* (2024) came to the conclusion that exchange-rate fluctuations had a significant impact on the profitability levels of the banks in Nigeria, which partly supports the argument of the de facto materiality of the impact. In contrast, Atieno, Nyenyi and Gideon (2024) found that exchange-rate fluctuations had an insignificantly negative influence on the banks in the East African Community, thus invalidating the positive relationship with East African Community banks. Moreover, substituting an exchange-rate-based policy implemented during the last economic cycle phase can further destabilize financial stability, as predicted by Okosu (2022), arguing that Rwandan findings were influential to the context and susceptible to the economic cycle.

Conclusion

Effect of Interest Rate on Financial Stability Commercial Banks in Rwanda

Given that the study aimed to determine the effect of interest rate on financial stability, the study found that there exists a significant positive relationship between the two variables. Through its findings, it can be stated that the monetary movements in the interest rates enhance the financial stability of commercial banks, as a boost in interest rates increases the intermediation margins and consolidates the solvency. Consequently, the conclusion that can be drawn from this study is that the interest rate policy is one of the most important factors that influence financial health within the Rwandan banking sector.

Effect of Inflation Rate on Financial Stability Commercial Banks in Rwanda

According to what has been discussed herein, the objective of exploring the effect of inflation on financial stability, the results showed a significant negative relationship that existed between the two variables. This resulted in the finding that inflation has a destabilising effect on commercial banks as it transfers the real value of assets and increases the risk of credit and weakens the balance-sheet positions of commercial banks. It means that in a Rwanda case, preservation of the financial information in the banking sector requires low and constant inflation levels in the country.

Effect of Exchange Rate on Financial Stability Commercial Banks in Rwanda

The survey also addressed the topic concerning how various exchange rate fluctuations affect financial stability. Regarding this objective, the study established that the exchange rate movements have a positive influence on the stability of banks in a significant way. In this respect, the study finds that a favourable exchange rate development has contributed to bank stability in Rwanda over the period under consideration, perhaps owing to valuation gains and competitiveness of foreign active clients. The fact that the exchange rate is not only material but also supportive of financial stability and the need to monitor exchange rate volatility closely are highlighted in this finding.

Recommendations

Given the finding of the study, suggestions were provided in view of the effect of the explanatory variables. In view of this, the study recommends the following.

The National Bank of Rwanda should adopt a gradual but properly calibrated interest rate policy that is required to solidify bank intermediation spreads, as well as the need to maintain cheap credit accessibility. In particular, regular reviews of the policy rate that are in synch with

liquidity and risk perceptions in the banking sector should be embedded so that rate adjustments remain supportive of stability without unnecessarily hindering private sector lending.

Through the fiscal and monetary sectors of its government, Rwanda must enhance provisions that control inflation by enhancing price-stability frameworks. This also involves intensifying the integration of fiscal policy and money operations, strengthening the expenditure restraint and introducing a more effective food and energy price control, which directly censors inflation pressure that directly affects the bank stability negatively.

The monetary authorities should ensure that they have proactive exchange rate management approaches that involve the minimization of high levels of volatility and maintain competitiveness. This can be realized by the following; accumulating sufficient foreign currency reserves, use of specific intervention strategies, and hybridizing hedging tools to banks and companies, thereby keeping the exchange rate dynamics to sustain financial stability in the short-term and the medium-term period.

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