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Credit Risk Determinants in Sub-Saharan Africa Banking Systems

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Abstract: This study investigated credit risk determinants in sub-Saharan Africa banking systems. The global financial crisis in 2008 to 2009 has caused banking crises. This study used time series data within a timeframe of 2016–2023, which included 22 banks in SSA. A dynamic panel data method was employed for estimation, utilizing techniques such as pooled-OLS, fixed effects, two-step difference, and system GMM estimation. The results of the estimations showed that the ratio of non-performing loans to total gross loans would decrease with an increase in the real GDP growth rate. The study found that a 1% rise in the real GDP growth rate results in a 0.13–0.23% point decrease in non-performing loans. However, it was discovered that the following factors significantly and favorably affect non-performing loans (NPLs): trade openness, volatility index - VIX as a proxy for global volatility, domestic credit given by banks to the private sector as a proportion of GDP, inflation rate, and the hypothetical variable responsible for the global financial crisis of 2008–2009.

Keywords: Credit risk; African Banking system; GMM

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1. Introduction

Profitability and liquidity are the two main concerns facing bank managers worldwide. The two critical management factors are negatively correlated, one must occur at the costs of the other, and they are not mutually reliant (Al-Eitan & Bani-Khalid, 2019). While decisions about profitability are made to maximize the firm's worth and the wealth of its shareholders, decisions about liquidity are made to keep the bank afloat so that it can satisfy its short-term maturing commitments as they become due. In order to meet customers' short-term cash needs, a bank must be liquid. However, for profitable sake, a bank must disburse cash in form of soft loan and advances to generate money for boosting shareholder wealth, and achieve an elevated value on the market for the bank (Emmanuel & Ekwere, 2022). As it stands, more liquidity tends to decrease profitability; nonetheless, bank management's primary responsibility is to achieve these two diametrically opposed goals. Bank leadership and creditors are obligated to take all reasonable precautions, both known and unknown, in light of the potential harm that credit risks pose in order to prevent losses from bad advances and debts.

As their long-term survival depends on the revenue and profits that support their operations, banks cannot avoid credit risk. Credit risk seems to be the biggest risk that they face, with other risk factors coming in second. It is important to remember that financing risks are mostly produced by actions in the global and economic settings, rather than by circumstances unique to the borrowing organization. Similar to the global economic collapse of 2007 and 2008, which had an impact on financial institutions worldwide, domestic economic policies in Nigeria can lead to bankruptcy creates credit risk and ultimately results in losses and the erosion of capital, or shareholder funds (Chimkono et al., 2016).

The fact that bank crises have a detrimental effect on a nation's overall economy makes the global economic downturn a serious worry. However, the banking industry has called for several research on the reasons of credit risk. Empirically, non-performing loans (NPLs), or advances and loans that are past due by 90 days or more, are typically used as a proxy for credit risk. NPLs can signal the start of a bank crisis and are a significant cause of bank collapse, according to Reinhart and Rogoff (2011). Due to data availability, the majority of research on credit risk factors concentrate on advanced countries and developing markets, with Sub-Saharan African (SSA) economies receiving very few empirical studies on the subject. Investigating credit risk among commercial banks is an essential component, which unveils banks that are prone to bankruptcy exploring the macroeconomic factors that influence of debit risk in the financial institutions of SSA countries is therefore a crucial matter (Beck et al., 2015).

Second, macroeconomic presumptions served as the foundation for the stress tests carried out in the wake of the global financial crisis of 2008–2009 in an effort to regain public trust in the banking industry. Fourth, the majority of banks in the economies of sub-Saharan Africa continue to function in hazardous financial conditions with shoddy legislative frameworks. According to Nikolaidou and Vogiazas (2017), among other things, risks in sub-Saharan Africa still exist due to variations in price, downturn in capital flow and ripples from external shocks. Soft financial conditions are allowing low-income nations to increase their access to international bond markets, while apex bank in other countries are implementing various policy to ensure economic development.

Previous financial crises have been faced by Kenya and Nigeria, two of the nations in this area (Mpofu & Nikolaidou 2018). To develop macroeconomics that is capable to reduce liquidity problem in some years later, more studies aimed at investigating credit risk in Africa is necessary given the modest pace of development, rapid expansion, and history of financial institution bankruptcy in African with the use of various econometrics techniques. Moreover, inflation rate, percentage of GDP that banks lend domestically to the private sector, both domestic and international trade. For sub-Saharan Africa, however, there is just one research (Fofack, 2005) that uses cross-country panel analysis to look at the factors that influence credit risk from 1993 to 2002. The dynamics in the estimating process are ignored in this long-running investigation. Thus, by concentrating on SSA, geographical area which has not witnessed attention it deserves empirically, thus intensifying to this area within a timeframe of 2016 – 2023 that covers global downturn of economic conditions will significantly contributed to the body of knowledge. Sub-Saharan Africa is the study's primary emphasis since the region's banking industry is still in its infancy but is expanding quickly in comparison to other emerging areas, making this research necessary.

1.1 Statement of Problem

The majority of nations in sub-Saharan Africa have developing financial sectors, driven by banks. Notwithstanding the Africa Development Banks' contributions to the expansion of the continent's economy, there are signs and data indicating some of these institutions may be experiencing both performance issues and a cash shortage. EIB (2013) emphasizes that although having access to monetary services is relatively limited, the region's level of financial intermediation is still much lower than that of other emerging nations. Specifically, worldwide economic downturn does not really positively influence African banks in SSA nations were indirectly impacted by the crisis, which made borrowers' financial difficulties worse and led to a rise in non-performing loans (henceforth referred to as NPLs). However, the researchers deem it fit to investigate credit risk determinants in sub-Sahara African banking systems.

2. Literature Review

2.1 Concept of Credit Risk

The idea of risk has been widely discussed in the literature, and it mostly depends on what is expected of an activity. According to Fadun (2013), risk is an essential component of business that no company or enterprise can operate without. It is frequently linked to uncertainty since an event might occur or not, and it could take the shape of a positive (opportunity) or negative (threat) occurrence. According to Soludo (2007), risk is not always bad; rather, what is harmful is risk that is mishandled, misinterpreted, mispriced, or unintentional. One type of financial risk is credit risk, which appears when a particular or a general event affects the anticipated flow of cash that could have helped borrowers repay loans or bonds to banks or other financial institutions, thereby impairing the likelihood of paying back the debt (Emmanuel & Ekwere, 2022). Default risk is another name for credit risk. This refers to a circumstance in which a lender does not satisfy liability to borrower in whole or in part. Al-Eitan and Bani-Khalid (2019) define credit risk as the chance of suffering financial loss as a result of counterparty's incapacity, refusal, or tardiness in fulfilling a financial commitment. Furthermore, credit risk is defined as the unpredictability that makes a party to a contract vulnerable to not being able to fulfill their dues.

2.2 Credit Risk Determinants

The non-performing loan rate, credit risk, liquidity risk, and loan to deposit ratio are all vital to banking operations. These are measures of banking operations that are impacted by how well credit risk is managed. Because of the high levels of perceived risk that commonly arise from the characteristics of some banks' clients and their business environment, credit risk management is thus of the highest importance to bank authorities and regulators (Emmanuel & Ekwere, 2022). It also exposes institutions to distress, stifles investment growth, and has a direct effect on the banking system and the whole economy. Liquidity risk is associated with credit risk and stems from the possibility that the bank may struggle to raise a significant sum of money to cover its immediate financial commitments. It is typically seen as an abrupt shortfall in liabilities linked to a reduction in borrowing capacity.

Compared to other risks, credit risk is by far the most critical one that banks confront, and the success of their company depends more on the precise assessment and effective management of this risk than any other (Emmanuel & Ekwere, 2022). However, a negative correlation between LTA and bank risk measurements may be indicated by the relative advancement of credit risk management tactics. In the meanwhile, a large amount of research has clarified the factors that influence credit risk. Regarding these factors, there are three different types of research. Research on the macroeconomic factors (Vouldis & Louzis, 2017), bank-specific variables (Jabbouri & Naili, 2019), and industry-specific variables unique to the banking

sector (Natsir, 2019) are also available. However, Mpofu and Nikolaidou (2018) proposed that a high credit risk limits the banks' access to borrowing and raises uncertainty about their capital position. This might have an impact on economic activity as it raises bank lending rates even more and slows credit expansion. Four metrics of banks' asset quality are generally recommended by the literature as a proxy for credit risk (Beck et al., 2015). LLPs and NPLs, however, are the most often utilized metrics or surrogates of risk to credit in the pertinent literature.

2.3. Overview of the Banking System in sub-Sahara Africa

After a protracted era of monobank systems, when credit appraisal and handling risks were irrelevant, developing a modern, market-oriented banking industry was a challenge for the emerging economies of sub-Saharan Africa (IMF, 2013). Early on in the transition, there were a lot of financial crises, which were followed by attempts at privatization and foreign takeover of a significant portion of the banking systems in sub-Saharan Africa. In sub-Saharan Africa, the frequency of crises fell precipitously starting in the early 2000s. Increased financial stability was brought about by foreign ownership, but it also resulted in boom-bust cycles and spread global shocks. Sub-Saharan African banks have benefited from foreign ownership as overseas parent banks helped their subsidiaries both before and during the 2008 financial crisis. The swift expansion of credit, consumption, and foreign debt was made possible by capital inflows, which expedited the course of financial deepening.

Large amounts of nonperforming loans burdened the banking institutions of several countries in sub-Saharan Africa. In several nations, the proportion of these loans above 10%, and in certain instances, it surpassed 20%, therefore compromising the profitability of banks. In sub-Saharan Africa, access to financial services has expanded in tandem with the region's economic growth. This expansion has mostly been facilitated by commercial banks, which have historically served as the backbone of the region's financial institutions. Over the past 20 years, there have been significant changes to the banking industry in SSA (Mecagni et al., 2015). Similar to the nations of sub-Saharan Africa, the banking environment in SSA has undergone substantial change as a result of financial openness and related reforms, enhanced regulatory capability, and an increase in cross-border activity. The remarkable drop in the number of financial crises over the past 20 years indicates that the banking systems in sub-Saharan Africa, which were previously dominated by state-owned banks, have become more stable (Mecagni et al., 2015). Since 1990, the predominantly state-controlled banking institutions in sub-Saharan Africa have gradually given way to privately held ones, with rising percentages of foreign ownership.

2.4 Theoretical Review

The Credit Risk Theory: Robert Merton first presented credit risk theory in his 1974 theory of default, sometimes known as the default model. The possibility of

losing money as a result of a counterparty's declining trustworthiness in a financial transaction is known as credit risk. Clifford V. Rossi developed three methods for quantifying credit risk based on the Merton model: loss distribution produced by Monte Carlo simulation, credit portfolio management, and the idea of credit spreads.

Asymmetric Information Theory: The idea of asymmetric information is strongly supported by the writings of Joseph Stiglitz, Michael Spence, George Akerlof, and others from the 1970s and 1973. The asymmetry of information gives rise to three issues. First of all, many parties to a negotiation have access to different information. Second, not everyone has access to flawless information all the time. Thirdly, access to "insider" knowledge may be privileged for other participants in a transaction. The unequal knowledge may cause moral hazard and unfavorable selection. According to Saunders and Cornett (2008), because lending might result in losses, financial intermediaries should keep an eye on the borrowers whose assets are in their portfolios, gather information about them, and monitor them over time.

Theory of Projection Income: Prochnow created theory of projection income in 1944, based on his observation, banks should budget for the loan liquidation based on anticipated inflows from the borrower's ongoing company. This implies that rather than receiving payment of the whole loan amount plus interest all at once upon maturity, banks get repayment of their loans in installments from the borrower's future earnings.

2.5 Empirical Review

Isedu and Erhabor (2021) wanted to determine if financial concerns affected DBM performance in Nigeria in any way. The research took into account eighteen DMBs, it was shown that one important factor influencing DMB performance in Nigeria was liquidity risk.

Poyraz and Ekinci (2019) examined how credit risk affected 26 Turkish commercial banks. The three types of bank ownership in the nation state-owned, privately owned, and foreign-owned were the basis for the analysis. Non-performing loans (NPLs) were utilized as explanatory factors and Return on Equity (ROE) and Return on Assets (ROA) as explained variables in a panel data study design. Analytical findings indicated an inverse relationship among NPLs: ROA together with return on equity. In order to boost profitability, it was advised that banks deliberately step up their efforts to manage credit risk by regulating and keeping an eye on non-performing loans (NPLs).

Oduro et al. (2019) used accounting information from institutions. After employing the 2SLS regression approach, it was shown that there is a negative correlation between credit risk and operational efficiency, net interest margin, and capital sufficiency. Conversely, bank size and the funding gap often have a favorable relationship with credit risk. Furthermore, annualized variations in inflation often

have a favorable impact on credit risk. The Basel accord is consistent with the observation that an increase in bank credit risk has a detrimental impact on business financial performance. Banks need to use caution while managing their credit risk.

Kajola et al. (2019) examined ten Nigerian deposit money institutions from 2005 to 2016. Data estimate using a panel data modeling method. It was discovered that there is a substantial correlation between ROA and ROE and all three credit risk metrics. They advised bank management to create strict credit standards so that they could evaluate the creditworthiness of their clients.

Al-Eitan and Bani-Khalid (2019) looked at how loan performance affected Jordanian commercial banks that were listed between 2008 and 2017 in terms of their financial performance. The panel data research approach and the GLS method were utilized to investigate the performance of Jordanian listed banks using both fixed and random-effect models. It was shown that return on equity (ROE) and return on assets (ROA) are significantly and negatively impacted by credit risk. Additionally, the findings showed that ROA and ROE are significantly impacted negatively by credit risk, which is measured by the ratio of doubtful debts to total loans, nonperforming loans, and loan losses to total loans. The size of the bank and the total amount of deposits have a positive and substantial effect on the banks' financial success.

Over a 17-year period (1998–2014), Taiwo et al. (2017) investigated the quantifiable impact of credit risk management on the performance of Deposit Money Banks (DMBs) in Nigeria and the expansion of bank lending. It was found out that credit risk management has little effect on the expansion of DMBs' overall loan and advance portfolio in Nigeria. Adopting prudent credit management procedures can increase depositor and investor trust in banking institutions.

3. Methodology

This study employs yearly data for a sample of 22 economies in sub-Saharan Africa from 2016 to 2023. African Development Banks, the IMF, and the World Bank provided the data utilized in this investigation. Nigeria, Malawi, Angola, Cameroon, Brazzaville, Chad, Botswana, Congo, Equatorial, Kenya, Lesotho, Mauritius, the nation of Namibia, Rwanda, Seychelles, South Africa, Swaziland, Tanzania, Uganda, Zambia, Guinea, Gabon, Gambia, and Ghana are among the sub-Saharan African nations that were the subject of this study. The availability of the dependent variable (NPL) limits the research timeframe. The panel in our sample is not balanced. This allows for cross-country study since panel data has the advantage of expanding sample size.

3.1. Description of Variables

The ratio of non-performing loans to total (gross) loans, expressed in percentage terms, is the dependent variable for non-performing loans (NPL). The following are examples of independent variables: The yearly percentage growth rate of real GDP based on local currency is known as the GDP growth rate, or GDPGR.

According to ILO estimates, the rate of unemployment(s) (UNEMP.) represent the overall rate of non-access to employable jobs expressed as a percentage of the labor force.

The interest rate that banks charge their customers when they lend them money is known as the lending interest rate (LIR). The yearly percentage change in the typical consumer's cost of purchasing a basket of goods and services is known as the inflation rate (INFLCPI).

The proportion of GDP that banks lend domestically to the private sector is known as DCPGDP. The Chicago Board Options Exchange Market Volatility Index, or VIX for short, measures volatility throughout the world. The real effective exchange rate, or REER, is expressed in logarithmic form, with 2010 serving as the base year. An increase in REER is interpreted as a rising value exchange rate.

The global financial crisis of 2008–2009 is represented by the dummy variable FINCRISIS, which has a value of one in those years and zero in all other years. The real GDP growth rate for the US is USGDPGR. The totality of trade (foreign and domestic) with respect to GDP is known trade openness, or TRADE.

In an attempt to examine the factors that influence credit risk in Sub-Saharan Africa's banking sector. The model utilized in this investigation was modified from research by Nkusu, 2011; Castro, 2013; and Klein, 2013. Therefore, the following econometric models were stated:

$$NPL_{it} = \alpha + \sum_{k=1}^{k} Yk\ NPL_{it-k} + X'_{it}\beta + \lambda_i + \in_{it} \quad (1)$$

The cross-sectional and time series components of the data are denoted by the letters., 2023, respectively. The error term is ∈ it, the unobserved country-specific effects are represented by λi.

We employed four distinct estimating methods to get the value of Eq. (1). We utilize the pooled-OLS first. Studies like Anderson and Hsiao (1981) and Arellano and Bond (1991) demonstrate that the OLS estimator becomes biased for small values of T when the lagged dependent variable is included as an explanatory variable.

Secondly, we employed the fixed effects model, which enables us to account for unobserved variation among nations. However, this methods can cause the error

term's fixed effects and the lagged dependent variable's potential endogeneity, especially in the "small T, large N" panels.

4. Discussion of Results

4.1. Results

Table 1. Descriptive Statistics

Variables	Observation	Mean	Std. Dev.	Min	Max
NPL	260	8.88	8.38	0.96	74.1
GDPGR	374	5.27	5.79	−9.69	63.38
UNEMP	374	12.18	9.15	0.74	37.6
LIR	309	19.11	12.95	7.3	103.16
INFLCPI	364	9.60	20.67	−9.62	325
DCPGDP	369	20.72	20.31	1.97	106.26
TRADE	358	88.15	46.71	21.12	351.11
REER	187	4.55	0.18	3.99	5.2
VIX	374	20.18	6.98	11.56	40
USGDPGR	374	1.93	1.55	−2.78	4.09
FINCRISIS	374	0.12	0.32	0	1

Source: Researchers' Computation (2024)

The variables' descriptive statistics are shown in Table 1 above. It is evident from the above table that there is a great deal of variety among the credit risk management factors across the nations. The year 2001 saw Rwanda record the highest non-performing loan (NPL) rate of 74.1%, while the year 2010 saw Congo Brazzaville record the lowest rate of 0.96%. These economies include those of Namibia, Rwanda, Seychelles, Gabon, Ghana, Kenya, Malawi, Mauritius, and Uganda. In several nations (such as Zambia, Nigeria, Swaziland, and the Gambia), the averages for 2008–2009 are higher than those for 2000–2007. However, since 2010, the averages of the economies of Uganda, Malawi, Ghana, Lesotho, Mauritius and Seychelles have surpassed those of 2008-2009. This implies that since 2010, there has been an increase in non-performing loans for these economies.

Table 2. Unit Root/Stationarity Test

Variable	IPS	Fisher-ADF Inverse normal	Fisher-PP Inverse normal
NPL		-7.53***	-1.96**
GDPGR	-5.66***	-10.64***	-9.46***
UNEMP	-4.76***	-10.05***	-5.00***
LIR	-2.25**	-7.63***	-0.52
INFLCPI	-6.11***	-10.82***	-10.23***
DCPGDP	4.00	-2.90***	2.30
ΔDCPGDP	-04.02***	8.96***	-10.58***

TRADE	-0.71	-6.84***	-1.2034
ΔTRADE	-12.66***	-13.37***	-15.46***
REER	-3.53***	-7.11***	-3.28***
VIX	-6.34***	-11.42***	-7.04***
USGDPGR	-3.35***	-9.32***	-9.02***

Source: Researchers' Computation (2024)

The unit root or stationarity test is shown in Table 2. Since a balanced panel is not necessary for the Fisher-type tests, this study uses the Fisher-ADF and Fisher-PP tests to determine if the variables are stationary. Using the Fisher-ADF, it was estimated from the preceding table in which most of the variables were static/stationary at level(s). Conversely, the Fisher-PP tests show that every other variable is levelly stationary, with the exception of trade, domestic bank credit to the private sector (DCPGDP), and lending interest rate (LIR). Furthermore, since the Im-Pesaran-Shin (IPS) test also does not necessitate the employment of a balanced panel, we employ it.

Table 3. Regression Analysis Results of the Variables

Variable	OLS (1)	OLS (2)	OLS (3)	FE (4)	FE (5)	FE (6)	AB (7)	AB (8)	AB (9)	SGMM	SGMM	SGMM
NPL_{-1}	0.801**	0.797***	0.787***	0.675**	0.678**	0.674***	0.702**	0.713**	0.705**	0.644***	0.618**	0.627**
	-5.56	-5.37	-5.49	-7.9	-7.06	-7.75	-11.96	-10.95	-11.83	-9.54	-6.67	-6.7
NPL_{-2}	-0.042	-0.064	-0.05	-0.019	-0.025	-0.022						
	(-0.34)	(-0.50)	(-0.40)	(-0.34)	(-0.44)	(-0.40)						
$GDPGR_{-1}$	-0.059		-0.097	-0.079		-0.081	-0.071		-0.077	-0.127**		-0.140*
	(-0.87)		(-1.33)	(-1.51)		(-1.53)	(-0.81)		(-0.90)	(-2.08)		(-1.70)
$GDPGR_{-2}$	-		-0.167***	-		-0.171**	-0.141		-0.144	-0.160*		-0.179
	(-2.33)		(-3.23)	(-2.07)		(-2.07)	(-1.12)		(-1.16)	(-1.70)		(-1.56)
$UNEMP_{-1}$		-0.049	-0.066		-	-		-0.03	-0.043		-0.069*	-
		(-0.77)	(-1.07)		(-2.22)	(-3.28)		(-0.68)	(-0.89)		(-1.66)	(-2.29)
$UNEMP_{-1}$		-0.005	-0.015		-0.018	-0.036		0.031	0.007		0.016	0
		(-0.08)	(-0.26)		(-0.23)	(-0.54)		-0.56	-0.14		-0.33	-0.01
FINCRISI	1.48	1.307	1.624	1.574	1.28	1.543	1.926*	1.813	1.942*	1.876**	-0.193	0..992
	-1.33	-1.16	-1.44	-1.64	-1.34	-1.59	-1.71	-1.6	-1.75	-5.64	(-0.11)	-0.33
C	2.679**	2.651***	4.283***	3.886**	3.937**	5.409***	3.076**	1.937	3.594**	3.915***	3.566**	6.057**
	-4.21	-4.15	-4.79	-8.37	-3.5	-5.06	-2.43	-1.61	-2.01	-3.57	-2.55	-3.21
No. Obs	216	216	216	216	216	216	211	211	211	233	233	233
R^2 Overall	0.7131	0.7116	0.7238	0.7107	0.7049	0.7195						
AR (1)							0.2161	0.1368	0.1272	0.1259	0.1385	0.1343
AR(2)							0.1258	0.2517	0.1242	0.1318	0.0608	0.0972
Sargan-test							0.2513	0.2397	0.2509	0.9009	0.9587	0.9054

*Notes: the models are estimated with robust standard errors. ***, **, * indicate the 1%, 5% and 10% level of significance respectively. Robust t-statistics are in () brackets. The model is estimated by ordinary least squares (OLS), Fixed effects (FE), two-step difference GMM of Arellano-Bond (AB), and two-step system GMM (SGMM). The variables are defined as; C = constant, No Obs = number of observations, AR(1) and AR(2) are the p-values for the Arellano-Bond tests for 1st and 2nd order autocorrelation in first differences errors. Sargan-test represents the p-values for the validity of the set of instruments used for over-identifying restrictions.*

4.2. Discussion of Findings

The credit risk drivers among financial institutions of SSA were empirically studied in this study. It was discovered via the regression analysis that the dependent variable's two delays were contained in columns 2 through 7 of Table 3. The dependent variable's initial lag is the only one that has statistical significance. The delayed non-performing loan (NPL) coefficients ranged in magnitude from 0.674 to 0.678 for the fixed effect and from 0.787 to 0.801 for OLS (columns 2-4). These results indicated that a blow on non-performing loan is expected to constitute long term negative influence on the financial sector across the countries. These results indicate that a shock to NPLs is likely to have a prolonged effect on the banking sector. We use ordinary least square couple with fixed effect to the nexus between unavailability of employable job and rGDP progression. The findings in Table 3; Columns 2 through 7 showed that, for the second lag of real GDP, there is a considerable decline in the percentage of non-performing loans to total (gross) loans when the real GDP growth rate rises. However, when utilizing fixed effect, the rate of unemployment is considerable but has the incorrect negative sign, and when using OLS, it is negligible. For both OLS and fixed effect approaches, the global financial crisis of 2008–2009 dummy variable is not significant. The results of the high persistence of non-performing loans (NPLs), the noteworthy real GDP growth rate, and the negligible unemployment rate remain unchanged when other macroeconomic factors are taken into account.

Furthermore, in Table 3 above, the data in columns 7-9 support the idea that non-performing loans (NPLs) remain following economic shocks with a range of 0.702–0.713. However, rGDP growth as well as unavailability of employable jobs are both negligible when seen through the lens of the Arellano-Bond (AB) estimate. Nonetheless, the world downturn in the financial sector had a good outcome indicates that credit risk rises in an adverse economic climate. The findings from Table 3's columns 7 through 9 showed that NPLs significantly rose during the financial crisis. The data indicate that NPLs grew by an average of 1.93–1.94% points during the 2008–2009 global financial crisis, which is significant from an economic standpoint. We operate the system using a GMM because the real GDP growth rate and unemployment rate are negligible. In columns 10 through 12 of the same table, the outcomes for the two-step system GMM are displayed. These data also demonstrate the persistence of one-lagged non-performing loans (NPLs) and the rise in NPL of around 1.88% point throughout the financial crisis. With the incorrect sign, the unemployment rate statistics are statistically significant. These results highlight the significance of putting in place economic policies that encourage economic expansion in order to lessen the issues related to credit risk among financial institutions.

5. Conclusion

In SSA, the banking systems' credit risk factors were empirically examined in this study. Over the course of the investigation, a dynamic panel data method was used, utilizing techniques such as pooled-OLS, fixed effects, two-step difference, and system GMM estimation. The study's research led to the estimation that the ratio of non-performing loans to total gross loans would decrease statistically and economically with an increase in the real GDP growth rate. Furthermore, a 1% rise in the real GDP growth rate results in a 0.13–0.23% point decrease in non-performing loans. However, it was discovered that the following factors significantly and favorably affect non-performing loans (NPLs): total trade (domestic and foreign), domestic credit given by banks to the private sector as a ratio to GDP, inflationary rate, as well as probable causal responsible for the worldwide bank crises of 2008–2009.

6. Recommendations

This study discovered that rising credit risk in sub-Saharan Africa's banking industry is a direct result of economic downturns; it is therefore recommended that economic growth should be prioritized because they have the potential to significantly benefit the banking industry by lowering the probability of loan defaults.

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