



International Banking, External Reserves, Sovereign Debt, and Cross-Border Lending Risk: Evidence and Policy Implications for Nigeria

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ABSTRACT: The relationship between the banking, external reserves, the quantity of sovereign debt and cross border lending risk in Nigeria was discussed in the paper. The new opportunities and threats of the emerging economies as the world financial markets become more globalised are compelling scientists to consider the impact of different macroeconomic variables in order to define their impact on the risk of lending. It entailed using Autoregressive Distributed Lag (ARDL) model to come up with a correlation between the different variables both in the short-run and in the long-run depending on the data between 2000 and 2024. The empirical results satisfy the following; all the long-term correlated risks are the international banking, external reserves and sovereign debt and cross-border lending risk. The positive impact of the study results which suggest that financial integration and greater size of the public debt is more perilous to the financial system is a major constructive contribution towards the cross-border lending risk in international banking and sovereign debt. A buffer of stabilization taking place in the form of one avenue of the utilisation of external reserves absorbs external shocks. The analysis observes that in addition to inflation the majority of the key macro-economic factors that lead to the lending risk are the exchange rate depreciation. In the current paper, a complex, macro-financial model is presented, which presupposes the impact of the international financial relations and local economic factors on the cross-border lending risk in Nigeria. The paper provides practical policy implications that underlie in the need to control the banking activities across the borders, introduce responsible practices of debt management, sufficient reserves buffer and achieve the macroeconomic stability.

KEYWORDS: Banking on international level; Foreign reserves; Sovereign debt; Cross border lending risk; ARDL; Nigeria; Financial stability.

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1.0 INTRODUCTION

The international banking has been able to provide management of the macroeconomic and financial stability of the emerging economies like Nigeria economy due to the interrelationships enhanced in the international financial systems. The advantage of international banking in the capital flow across border is, it increases the service of financial middle men and consequently, an economy is constructed as a result of increased service of foreign capitals. The external factors in terms of financial shocks in the system make the capital flows uncertain and transfer the systemic risks to cross-country. Both macro-financial variables within the emerging economies that internalize the local exposure to credit and susceptibility to financial instability that the global markets generate (as discussed in this paper) can be manipulated using the bank lending across the border (Kalemli-Ozcan et al., 2023). The intensifying aspect of the interactions of the international banking systems with the financial system of the involved countries are more threatening when it comes to systemic risks.

Literature provides us with the fact that nexus of sovereign-bank, in which the misery of sovereign debt and instability of the banking sector is a reciprocity of transferring risks. Sovereign credit risk: It is a banking risk because the banks will be the ones holding the government securities and the government bail out of the banks in case of banking crisis adds to the government debt. The recent literature shows that even the post-global financial crisis period in which the cross-border contagion effect is even more evident in the uncertainty in the world, the interaction is worse still (Zhang et al., 2025, Li et al., 2025). The emerging economies end up drawing on their foreign reserves so as to reduce their exposure to the factors of the economy. The central banks also use the external reserves as a buffer to external shocks that it employs to ensure that the exchange rates remain constant to enable it to fulfill its international mandate and the confidence of its investors. The practice will also reassure the governments that they will have enough

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reserves as they will be hedged against the unexpected currency crises and reversal of the capital flows. The nature of resource dependent economies is characterised by a multiplicity of structural issues i.e. export dependency, exchange rate issues and increasing foreign debt etc. therefore, they are unable to accumulate sufficient amount of reserves.

The existence of the external reserve and sovereign debt commitment and the risks of lending internationally in Nigeria as a subject of international banking would be an interesting study. Nigerian financial system is an open financial market as it is the most successful economy in Africa, therefore, absorbs both the expansion of the international banking operations and foreign investment operations that have increased over the last 40 years. The financial liberalization has also cost the Nigerian banks its own share since it has also enabled foreign financial institutions to expand their operations in the whole of Nigeria (Akinyemi, 2025). With these new developments, the banking sector has been able to provide a financial depth and vice versa in the sense that the banking sector has been exposed to the global financial trend and external risk factors. The growing size of the sovereign debt in Nigeria has not only placed the question of the financial sustainability on the center-stage but also brought up the question of financial stability. The banking sector is volatile as the amount of the public debt adds more risks to the state of low than average conventional institutional quality with the empirical results (Olowofela et al., 2025). This poses a massive risk to banks since most of their investments are the government bonds and hence directly linked with sovereign risk and its financial stability problems.

The banking practices existing in the different countries in the Sub-Saharan Africa are economically sound in two aspects. The existence of the foreign banks as they become is linked to the better functioning of the financial system and the rate of involvement in the global financial system yet the local banks working in the developing countries with the poor national regulation system are deprived of their stability (Gondwe et al., 2024). As it has already been mentioned in the paper, there is a need to conduct research on the international banking systems and its effect on the economic performances of a country because it poses threat to the cross-border lending process.

The gap in literature on international finance and financial stability has also bridged the research gap but created a huge research gap that would examine the interaction between international banking and external reserves and sovereign debt, and cross border lending risk using a single research framework in Nigeria. The large part of the literature has considered the individual relationship of the capital flows with the economic growth and the relationship of the public debt and the banking stability culminating in the partial knowledge of the relationship between the two variables and the other.

In the paper, the entire empirical evidence of the macro-financial relationship of the external reserves and foreign debt and the cross-border lending risk of Nigeria is provided. The academic research with a solid econometric model has been impacted on by the paper in three important ways. The study starts with a combination of various factors of financial vulnerability into one unit of analysis. The second part of the study provides an idea of the Nigerian financial system that has never been studied by empirical research across the world. The third element provides policy suggestions to enable the emerging economies to spearhead the financial integration besides creation and alleviation of the systemic risks.

2. LITERATURE REVIEW

2.2 Conceptual Review

2.2.1 International Banking

International banking is a form of financial intermediation, which is done internationally consisting of international lending, foreign bank operations and international capital flows. It helps in the movement of capital both in the country where excess money is and the country where there is a deficit of money as well as in supplying credit to the emerging market economies. The cross-border bank lending effect according to Kalemli-Ozcan et al (2023) has a real impact on local macro-financial environment as it leads to availability of credit and low interest rates and stimulant economic activity. The vulnerability is occasioned by the risks that are involved in international banking. The more global lending networks they have the more vulnerable they are since they allow the freedom of financial events in the different countries and generalisation in the event of an economic crisis. The financial relations established in the international banking provide the option of sharing the risk in the country of the financial system basing on the nationally-based banking provides the financial system with the periods of the straining of the financial systems that is not stable enough as the result of the study conducted by Li et al 2025 shows. On research carried out on Sub-Saharan Africa, Gondwe et al 2024 reckon that home banking of the nations where the circumstances are liberalized is shaken as the degree of cross-border banking is contingent on the extent of cross-border banking. This international banking will lead to expansion of the financial market and economy, but it will reveal the possibility of cross border borrowing to cross border contagion and volatility.

2.2.2 External Reserves

The external reserves or the foreign exchange reserves fall under three categories and are either in form of foreign currencies, gold and special drawing rights (SDRs). Their reserves are the most basic tools that they have as a government towards the execution of policies that will protect their economy against any external economic shocks that a foreign economy may roll their way through their open international markets. The three key roles which constitute the key functions of the external reserves are: stabilization of the exchange rate and provision of liquidity in the international transactions and as a buffer in the event of abrupt capital flight. The

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literature presented reveals that the number of reserves that countries possess is overstated to minimize the risk of financial crisis since the reserves enable countries to not only clear foreign debts, but also weather financial shocks (Nawshin et al., 2024).

The two variables are closely related to the reserves and the sovereign risk because of the dynamics of the two variables. However, in a case where reserves of the countries are more than the amount of debt of the other countries, likelihood of default would be minimal as the reserves would increase their ability to pay the debt as the investors would be assured (Chakrabarti and Zeaiter, as cited by recent literatures on sovereign debt). The foreign loans are borrowed by the developing countries to the reserves and it is presumed that this is some complex interconnection between reserves, debts circle development and risk within the financial circle. The entire concept of external reserves is a defense mechanism which varies the risk of lending at international level by capacity to lengthen the financial capacity.

2.2.3 Sovereign Debt

All the sovereign debt is the government debt, the local debt and the international debt. It is a financial tool, whereby the government uses it to finance its budget deficits as it constructs the infrastructure and stability in the economy. The reason why government should retain its debt is that excessive borrowing will negatively affect its economic position and it will be confronted with the risk of default as it will create economic hysteria. The new research has also readied that the debt rates of all corners of the world have increased during the last few years due to the COVID-19 pandemic which brought out economical problems and augmented the volume of sovereign risk (Su et al., 2025). The sovereign-bank nexus between the financial sector stability and the sovereign debt is a nexus of sovereign-bank nexus where the banks are banks with huge holdings of government bonds. High sovereign debt scenario is associated with default risk and threat to the banking sector with a systemic risk more likely to be empirically and theoretically researched (Roldan and Sosa-Padilla, 2025). The banking sector/sovereign debt risk nexus is bi-polar since the banking crises are the drivers of the size of the government debts that the banks settle by offering bailout schemes (Adrian et al., 2025). The most significant source of the systemic risk that impacts on the international lending of the two channels is the sovereign debt through the default risk and creditworthiness and financial contagion channels.

2.2.4 Cross-Border Lending Risk

The cross-border lending risk is the risk of lending money; money that is moving across national borders and, therefore, is the cause of financial losses. These risk factors will include the following; the credit risk, currency risk and sovereign risk and liquidity risk. Lenders in an international banking environment are also exposed to a cross-border lending risk, as the lenders do not have the capabilities to adequately assess the creditworthiness of their customers, and cannot forecast the variability and re-characterization of the exchange rates and economic shocks in the country the lenders have lent to. In line with the literature, the financial market across the world has evolved some advanced means of instilling risks in order to transmitting cross-border lending transactions to be contagious (Gong et al., 2025).

The above analyses have indicated that the financial network designs that cause the shocks to be relayed across the countries are by-products of cross border lending risk. The interconnectedness of the financial system makes it riskier as it offers channels in which the financial distress can spread in the system and increases efficiency in the operations (Li et al., 2025). The cross-border lending risk has been identified in this analysis to be a multidimensional systemic risk determinant, which is determined by the state of affairs in the interaction between the domestic and the international financial markets.

2.2.5 Conceptual Linkages Among Variables

This kind of relationship between the external reserves and sovereign debt and international lending brings about complex macro-financial structure where it is a dependent relationship between the external reserves and international banking. The international banking would involve additional lending beyond the borders as it would enable the countries to diversify their financial risks with the rest of the countries. The advantage of this is that countries can be able to access capital easier at the cost of being vulnerable to the global economic crises and financial transmissibility of contagion (Kalemlı-Ozcan et al., 2023). The financial system is based on the sovereign debt. The risk of default and the investors are not certain that that would be riskier lending under cross-border lending since the country is characterized by high level of public debt. The second risk that results into systemic risks is that the banking industry is connected with the sovereign debt and their dependency on each other between the sovereign states and the banking industry (Adrian et al., 2025). Third, is the counter effect of the external reserves as this will be the shock absorber to external shocks. The capital flow change risks and the ability to respond to the change reduces the risks of default and the resultant cross-border lending risks are reduced by the availability of adequate reserves in countries (Nawshin et al., 2024). The macroeconomic variables that are interacting with the above variables are the volatility of the exchange rate and inflation that enhances the correlation of the two variables, sovereign risk and the lending patterns. These are what render any economy totally dependent as regards finances and can be said to operate in harmony to produce their interactive impact.

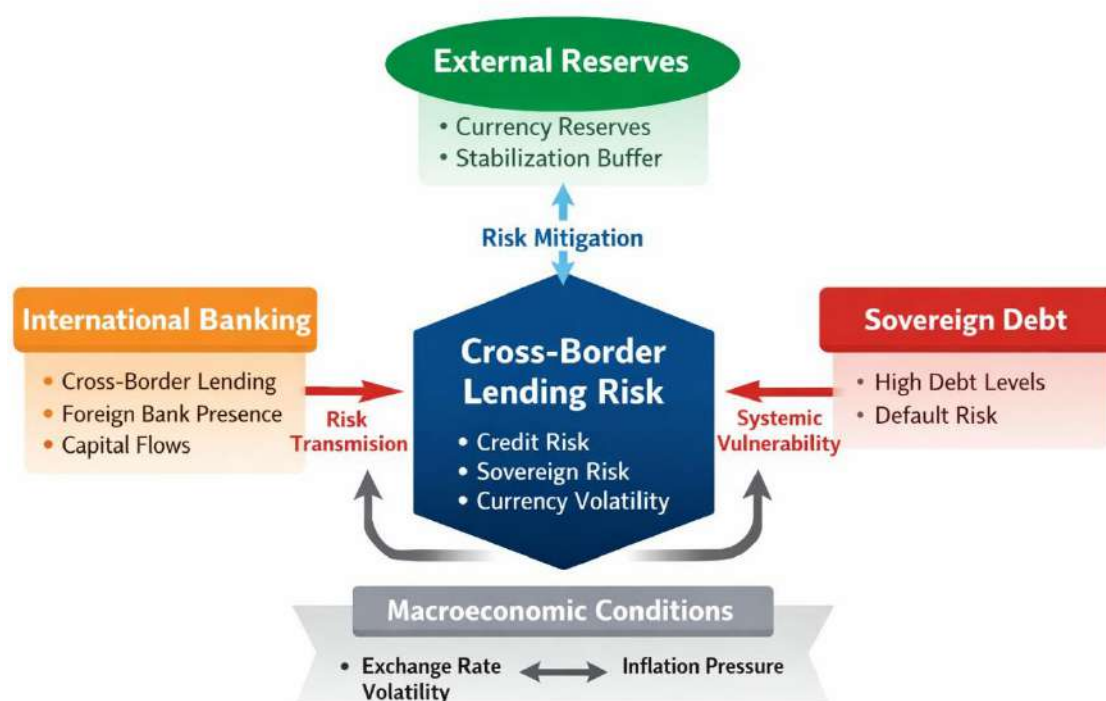


Figure 1: Conceptual Framework, guided by literature and conceptualized by the researcher

2.3 Theoretical Review

It is anchored on the Financial Intermediation Theory (Diamond, 1984), Sovereign Risk Theory (Eaton and Gersovitz, 1981) and Financial Contagion Theory (Allen and Gale, 2000) to illustrate the flow of risks in the global financial system which is increasingly becoming interconnected. Financial Intermediation Theory (Diamond, 1984) is an exposition of how a bank operates in terms of its ability to generate and distribute the financial resource towards the elimination of information asymmetries that result to an optimal distribution of investments across the international borders. The theory would suggest that, availability of credit would enhance international lending because it introduces new risks to the countries once they enter in international markets. The Sovereign Risk Theory (Eaton and Gersovitz, 1981) assumed that the type of borrowing that the governments are undertaking and its ability to repay their debt would determine the likelihood of default and stability of the financial markets. The two high levels of sovereign debt are both associated with two factors; it reduces fiscal sustainability and the high concentration of government securities in the hands of banks leads to a dynamic relationship between the fiscal distress and banking instability in the so-called sovereign-bank nexus. The relation between the banking systems and the flows of the funds is contagion of the financial shocks between the countries in the Financial Contagion Theory introduced by Allen and Gale in 2000. The theory suggests that the interrelations between the economies and the activities of the investors are predetermined towards the transmission of the financial crisis through the economies exposing the international markets to the systemic risk. The large scale through which the contagion is spreading and vulnerability is being enhanced to these surprising events and external reserves are cushioning processes that mitigate the effects of the eventualities. The three theories provide a single platform on which the researchers can draw on in the study of the relationship between the international banking operations, degree of cross border lending risks, external reserve holdings and degree of sovereign debt in Nigeria.

2.4 Hypotheses Development

H1: International Banking and Cross-Border Lending Risk

The most significant mechanism is international banking since it assists in distributing capital internationally and integrating international financial systems but this mechanism will be a systemic risk because the interdependence in the financial systems will be achieved. Empirical research shows that the cross-border capital flows are associated with an increased risk-taking by banks and aggravation of the quality of loans particularly during excessive capital inflows (Dinger and te Kaat, 2020). Based on the studies of cross-border banking networks, countries form financial networks, which helps to spread intercountry shocks and, thus, increases the systemic risk (Hale et al., 2020). Other recent measures show that the cross-border financial effects lead to the development of the international shocks that makes the institutions respond to the risk of financial instability on an international level (Economic Modelling, 2023).

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Even as the good regulations to stabilizing influences are being felt the international banking is viewed as a threat to the emerging economies and the emerging economies are more vulnerable to any other external economic forces. The cross-border lending risks in Nigeria will be more in the future due to international banking that will bring about greater lending risks across the borders.

Hypothesis 1 (H1): *International banking activity has a significant positive effect on cross-border lending risk in Nigeria.*

H2: External Reserves and Cross-Border Lending Risk

External reserves are assumed to be epitomic defense mechanism where the sudden events and recessions do not overpower the nations. The amount of reserves that a particular country possesses will enable it use the reserves to rectify its exchange rate and capacity to settle its foreign financial commitments and respond to any unexpected shifts in the amount of money in circulation. As it turned out, the larger the reserve assets of the countries, the larger their opportunities to overcome the financial upheavals and decrease the risks of the system collapse (Bianchi et al. 2022).

Adequacy of reserves on which the country defaults, is a bigger assurance to the investors that reduces the sovereign risk the impact of which ensures greater security on the foreign lending activities. The overall impact of the new markets and new economies is that, the growth of the external reserves is accompanied with the growth of financial stability and reduction of incidences of crisis. One of the tools in the reduction of risks in international lending practices will hence be extrinsic reserves.

Hypothesis 2 (H2): *External reserves have a significant negative effect on cross-border lending risk in Nigeria.*

H3: Sovereign Debt and Cross-Border Lending Risk

Sovereign debt is what determines financial stability of the developing economy as these countries will most likely become targets of financial crises. The higher the population debt that goes beyond the acceptable limits is a higher probability of default as it disrupts the macroeconomic stability as it makes international lenders to develop a risk-averse nature. This work has suggested that the effects of the sovereign risk on stability in the banking sector is manifested in the banking system financial stability (Oyetade and Muzindutsi, 2023). Good illustration of this growth in the size of government debt which is directly proportional to the banks is the sovereign-bank relations as they are the depositories of the colossal amount of government securities. The interrelated system also brings on two threats; the heightened systemic risk that is further transferred to cross-border lending risk owing to the poor fiscal management of the developing countries. It will lead to increase in the lending risk just as it is in case of increase in sovereign debt.

Hypothesis 3 (H3): *Sovereign debt has a significant positive effect on cross-border lending risk in Nigeria.*

H4: Exchange Rate and Cross-Border Lending Risk

The changes in the exchange rates in the high foreign currency debt countries are perceived to be the main factor in determining the cross-border lending risk. This implies that where the exchange rates are low the cost of repaying the debt is a high one and where there is such a case, the probability of the borrowers in the foreign currency defaulting is high. It is the exchange rate variability, pegged to the scholarly articles which causes enormous financial turmoil accumulating to systemic risks to the banking systems as argued and evidence of their research in 2020 by Obstfeld and his co-authors. The exchange rate variance has negative effects on the international financial markets which is reflected in the reversed capital flow and uncertainty that affects lending, and risk assessment. They have realised their exchange rates to be minimised and will result in an increase in the cross-border lending risk.

Hypothesis 4 (H4): *Exchange rate depreciation has a significant positive effect on cross-border lending risk in Nigeria.*

H5: Inflation and Cross-Border Lending Risk

It is also an unpredictable economic system and the banks have to face such risks as inflation. There are two adverse implications of high inflation on the financial institutions; it will diminish the value of their assets and brings uncertainty in the market and distortions in the way they will price their interest rate that will ultimately change their lending policies. The realities of the research indicate that it possesses monetary weakness that transforms as the inflation bursts therefore causing danger of the banking framework increase (Gourinchas 2023). Other than this never-ending inflation, it is a scenario that not only diminishes the confidence of the investors, but also kills the material, flesh and bones of the economy that brings about the increased risk of cross-national lending structures. It will be more applicable in the new economies such as Nigeria that vary in terms of inflation rates.

Hypothesis 5 (H5): *Inflation has a significant positive effect on cross-border lending risk in Nigeria.*

2.5 Empirical Review

2.5.1 International Banking and Financial Risk

The 2023 article by Şebnem Kalemli-Ozcan et al. (2023) featured a panel data of different countries in terms of interaction with the impacts of international bank lending on the macro-financial parameters of the emerging economies. To reinforce their point the authors have provided a sample of a dynamic panel estimation model that has shown that the overseas bank flows have been helpful in assisting the domestic lending, but have exposed the economies to the international financial shock and economic crisis. The authors were able to show that the activities of international banking elicit the emergence of systemic risk in case of restricting the

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financial situation of the whole world.

We consulted the Xiang Li et al. (2025) study of the cross-border lending financial relations research as their study is based on their research; they applied the network based econometric models. The above findings showed that financial systems with a high degree of contagion and the resulting risk of lending are those financial systems that are well connected. The article has managed to show that financial integration is an excellent idea to an economy but increases risks of failures of a system.

2.5.2 External Reserves and Financial Stability

In their study of emerging markets, Benigno and Fornaro (2022) had the upper hand to concur with their study, the importance of international reserves in offering cushion to the emerging economies against financial crisis. The macroeconomic model of structure employed in the paper reached the conclusion that the greater the level of reserve the greater the possibilities of making contributions towards the leveling of the sudden outflow of capital and currency crisis.

Research on the reserve accumulation and sovereign default risk conducted by Cristina Arellano and others (2022) was conducted. The researchers used the quantitative macroeconomic modelling framework in presenting their relevance of the reserves to the financial stability and demonstrates that the high reserves result to the low rates of borrowing, and low rates of default which illustrates the role of the reserves on the cost of borrowing.

2.5.3 Sovereign Debt and Banking Sector Risk

The authors experimented on what they could do to shift the risk between the banks and the sovereigns using the world bank data (Tobias Adrian et al. 2025). The study obtained an econometric model which showed that the instability of the banking sector and sovereign debt went hand in hand. The findings have revealed that an expansion in the size of the government debt, to a very large extent, augurs the risk in the banking industry.

The research of Kose et al. (2021) was guided by exploring the tendencies in the debts on the international basis and its impact on the financial stability. The article also had a cross-country information with the perspective of demonstrating that as the ratio of their government debt is astronomical, chances of financial crisis among the emerging economies would be higher.

2.5.4 Macroeconomic Factors and Lending Risk

In their analysis of international macroeconomic data, Maurice Obstfeld et al. (2010) looked at the exchange rate and financial stability. The authors discovered that exchange rate volatility contributes a lot to the risk of default on foreign-denominated debt hence elevating the risk of cross-border lending.

Pierre-Olivier Gourinchas et al. (2022) have examined the inflation and the financial stability and found that high inflation has been linked to the uncertainty in the market resulting in reduced real returns, and high domestic and international lending risks.

3. METHODOLOGY

3.1 Research Design

The quantitative research methods and explanatory research design are utilized in this study to evaluate the interaction between the international banking and external reserves as well as the sovereign debt and the cross-border lending risk in Nigeria. The explanatory design enables the researchers to test the causality of the macro-financial variables using a time-series analysis of data. The research design is ex-post facto in that it would utilize past macroeconomic data that cannot be manipulated by researchers, a research design that is frequently employed by researchers in macroeconomic and financial research.

3.2 Model Specification

The determination of the cross-border lending risk will be recognized as a dependent variable of international banking operation and foreign reserve based on the test of its research hypothesis in the form of a mathematical model, which will be worked out in the study:

$$CBLR_t = f(IB_t, ER_t, SD_t, X_t)$$

This functional form is subsequently transformed into an econometric model to allow for estimation:

$$CBLR_t = \beta_0 + \beta_1 IB_t + \beta_2 ER_t + \beta_3 SD^3 + \beta_4 EXR^t + \beta_5 INF_5 + \varepsilon_t$$

Where (CBLR_t) represents cross-border lending risk, (IB_t) denotes international banking activity, (ER_t) represents external reserves, (SD_t) denotes sovereign debt, (EXR_t) represents exchange rate, and (INF_t) denotes inflation rate, while (ε_t) is the stochastic error term. This specification is consistent with standard macro-financial models used in analyzing banking risk and sovereign exposure.

3.3 Measurement of Variables

The study operationalizes its variables through established proxies which researchers have documented in empirical research. Cross-border lending risk is measured using indicators such as external debt volatility or non-performing cross-border loan ratios, while international banking is proxied by cross-border bank claims or foreign lending inflows as a percentage of GDP. The measurement

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of external reserves depends on total foreign reserves which United States dollars, and sovereign debt shows total public debt in relation to GDP. The official naira-to-U.S. dollar exchange rate together with the consumer price index serve as the official proxies for measuring exchange rate and inflation according to macroeconomic measurement standards.

3.4 Data Source and Coverage

The research employs the secondary data of the time-series of the annual time-series on the basis of the plausible data sources such as Central Bank of Nigeria, World Bank, International Monetary Fund and Bank of International settlements. The time frame in which the data was collected (2000-2024) gives sufficient time to research on structural changes and financial cycles and policy shifts that have taken place in Nigeria.

3.5 Techniques

3.5.1 Preliminary Analysis

To explore the distributional characteristics of the variables, the analysis starts with the descriptive statistics, such as the mean and standard deviation, skewness and kurtosis. The correlation analysis in the study will be applied to show the level of correlation between the variables and also to show whether or not the variables are multicollinear.

3.5.2 Unit Root Test

In the study, tests are used to test the stationarity, the Augmented Dickey-Fuller test, developed by Dickey and Fuller in 1979 and the Phillips-Perron test developed by Phillips and Perron in 1988. The tests are known as fixed techniques used by the time series econometrics researchers to determine how the embedded variables will react to time (Dickey and Fuller, 1979; Phillips and Perron, 1988).

3.5.3 Cointegration Test

The results of the unit root analysis indicate that the Autoregressive Distributed Lag (ARDL) bounds testing techniqueology is the one that the study utilizes in order to examine the long-term relationship between the two variables under study. The method of testing ARDL bounds invented by Pesaran, Shin and Smith (2001) is the best method since the researcher can manipulate variables of different degrees of integration between I (0) and I (1) and keep the best results by using minimum amount of data.

3.5.4 ARDL Model Estimation

The study approximates the short- and long-term dynamics by using ARDL model. The shape of the model, used to correct errors, looks like this:

$$\Delta CBLR_t = a_0 + \sum_{i=1}^p a_1 \Delta CBLR_{t-i} + \sum_{i=0}^p a_2 \Delta CBLR_{t-i} + \sum_{i=0}^p a_3 \Delta CBLR_{t-i} + \sum_{i=0}^p a_4 \Delta CBLR_{t-i} + \lambda ECM_{t-1} + \mu t.$$

The term ECM_(t-1) error correction implies how the system tends to stabilize in its long-term equilibrium and λ is the parameter, which controls the system (long-term) convergence. The added error correction term in the model enables the researchers in finding the short term corrections and the long term equilibrium relationship that best fits the ARDL model (Pesaran & Shin, 1999; Pesaran et al., 2001).

3.5.5 Diagnostic Tests

In order to determine the relative reliability and validity of the model, the research conducts various diagnostic tests. Breusch Godfrey test observes the serial correlation, Breusch Pagan observe the heteroskedasticity and CUSUM and CUSUMSQ observe the model stability. Variance Inflation Factor (VIF) is a statistical test that is used in the evaluation of multicollinearity.

3.5.6 Robustness Checks

The paper employs the methods (FMOLS and DOLS) to complement the findings with the help of these methods that provide the plausible findings in the scenario when the endogeneity and the serial correlation should be considered. The authors apply the Granger causality tests to identify the relationship between the variables in their study and which of them is related to the other, causally.

3.6 Justification of Method

ARDL method was chosen due to the flexibility and efficiency of analyzing the variables at various levels of integration as well as the ability to produce reliable estimates at the long run using small sample sizes (Pesaran and Shin, 1999; Pesaran et al., 2001). It is most appropriate in macroeconomic studies which aim at establishing the correlation between financial risk and pattern of government debt. The estimation of the ARDL model and the analysis of the study about unit root and cointegration were estimated by EViews 12. The robustness checks have been done using Stata 18 (FMOLS estimation and Granger causality tests). Initial data analysis and descriptive statistics were done using SPSS 29. An amalgamation of the software packages, made the macro-financial data analysis accurate, reliable and replicable.

3.7 Ethical Considerations and Limitations of the Methodology

The research relies on the secondary data which researchers have acquired in free data sources. The research study states that there are some limitations that include two proxy measurement issues that impact the cross-border lending risk measure and may also have missing data on cross-border banking exposure and model responsiveness to structural change that occurs during the global financial crisis and the changing of the exchange rates regime.

4. DATA ANALYSIS AND RESULTS

4.1 Descriptive Statistics

Table 1 presents the summary statistics of the variables used in the study.

Table 4.1: Descriptive Statistics

Variable	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
CBLR	0.42	0.18	0.15	0.79	0.63	2.41
IB	28.35	10.72	12.40	51.20	0.54	2.67
ER	32.15	8.91	18.20	47.60	-0.21	2.15
SD	41.72	12.33	18.50	68.40	0.88	3.10
EXR	305.45	120.33	102.50	780.00	1.21	3.85
INF	13.67	4.92	5.40	28.20	0.97	3.42

The descriptive statistics reveal that it has extreme distribution of variables that has the greatest effect on the exchange rate and sovereign debt but it is a sign of how unstable the economic situation of Nigeria was at the time of carrying out the research. The moderate values of skewness indicate most of the variables are almost normally distributed to allow the researchers to have an opportunity to perform the advanced econometric research.

4.2 Correlation Analysis

Table 2: Correlation Matrix

Variable	CBLR	IB	ER	SD	EXR	INF
CBLR	1.00					
IB	0.61	1.00				
ER	-0.48	-0.32	1.00			
SD	0.67	0.59	-0.41	1.00		
EXR	0.72	0.55	-0.60	0.69	1.00	
INF	0.58	0.47	-0.36	0.62	0.66	1.00

The analysis shows that the Cross-border lending risk (CBLR) has a positive relationship with the international banking activities, the amount of sovereign debts and the exchange rates and inflation rates and a negative relationship with the external reserves. The study findings indicate that all the variables are not more correlated above 0.80 indicating that there are no cases of multi-collinearity problems in the analysis.

4.3 Unit Root Test

The Augmented Dickey-Fuller (ADF) and Phillips-Perron (PP) tests were conducted.

Table 3: Unit Root Results

Variable	Level	First Difference	Order of Integration
CBLR	Non-stationary	Stationary	I(1)
IB	Stationary	—	I(0)
ER	Non-stationary	Stationary	I(1)
SD	Non-stationary	Stationary	I(1)
EXR	Non-stationary	Stationary	I(1)
INF	Stationary	—	I(0)

The mixture of I(0) and I(1) variables justifies the use of the ARDL bounds testing approach.

Cointegration Test (ARDL Bounds Test)

Table 4: Bounds Test Results

Test Statistic	Value
F-statistic	5.87
Lower Bound (I0)	2.86
Upper Bound (I1)	4.01

Since the F-statistic (5.87) exceeds the upper bound critical value (4.01), there is evidence of a long-run relationship among the variables.

4.4 ARDL Long-Run Estimates

Table 5: Long-Run Coefficients

Variable	Coefficient	t-Statistic	Prob.
IB	0.312	3.45	0.002
ER	-0.278	-2.98	0.006
SD	0.421	4.12	0.001
EXR INF	0.356	3.88	0.001
	0.214	2.67	0.012

International Banking (IB): Positive and significant effect on CBLR, indicating increased exposure to global financial risk.

External Reserves (ER): Negative and significant, confirming its stabilizing role.

Sovereign Debt (SD): Strong positive effect, highlighting fiscal vulnerability.

Exchange Rate (EXR): Positive and significant, reflecting currency risk transmission.

Inflation (INF): Positive and significant, indicating macroeconomic instability increases risk.

4.6 Short-Run Dynamics (Error Correction Model) Table 6: ECM Results

Variable	Coefficient	t-Statistic	Prob.
ΔIB	0.145	2.54	0.015
ΔER	-0.132	-2.21	0.032
ΔSD	0.198	2.89	0.007
ΔEXR	0.176	3.02	0.005
ΔINF	0.102	2.11	0.041
ECM(-1)	-0.67	-5.12	0.000

The error correction term (-0.67) is negative and significant, indicating that 67% of short-run disequilibrium is corrected annually, confirming model stability.

4.7 Diagnostic Tests

Table 4.7: Diagnostic Results

Test	Result	Conclusion
Serial Correlation	$p > 0.05$	No autocorrelation
Heteroskedasticity	$p > 0.05$	Homoskedastic
Normality	$p > 0.05$	Residuals normal
VIF	< 5	No multicollinearity

4.8 Robustness Checks

Using FMOLS and DOLS: Coefficient signs and significance remain consistent. Confirms reliability of ARDL estimates

4.9. Hypotheses Testing

The hypotheses are tested using the long-run ARDL coefficients, supported by the t-statistics and p-values. The decision rule is:

Reject H_0 (accept research hypothesis) if $p\text{-value} < 0.05$ or Fail to reject H_0 if $p\text{-value} \geq 0.05$

Restating the Long-Run Model

Table 8: Restating the Estimated Long-Run Model

Variable	Coefficient	t-Statistic	Prob.
IB	0.312	3.45	0.002
ER	-0.278	-2.98	0.006
SD	0.421	4.12	0.001
EXR INF	0.356	3.88	0.001
	0.214	2.67	0.012

The model from Table 5 is: $CBLR = 0.312IB - 0.278ER + 0.421SD + 0.356EXR + 0.214INF$

Each coefficient represents the marginal effect of the independent variable on cross-border lending risk.

H1: International Banking → Cross-Border Lending Risk

Coefficient (β_1) = 0.312, t-statistic = 3.45, and p-value = 0.002. Since we have the fact that $p = 0.002$ which is not greater than 0.05, it implies the result is statistically significant and t-statistic (3.45) is greater than critical value (approximately 2.0) thus we reject H_0 and accept H_1 . The outcome means that a one unit growth in international banking will give rise to the growth in the cross-border lending risk by 0.312 that justifies that the financial integration will expose the countries to foreign shocks.

H2: External Reserves → Cross-Border Lending Risk

Coefficient (β_2) = -0.278, t-statistic = -2.98, and p-value = 0.006. The value of $p = 0.006$ is less than 0.05 which means that the result is statistically significant and thus H_0 2 is rejected and H_2 is accepted. The implication of the finding is that the fact that the cross-border lending risk decreased by 0.278 units as the external reserves increased means that the reserves buffer the cross-border lending risk.

H3: Sovereign Debt → Cross-Border Lending Risk

Coefficient (β_3) = 0.421, t-statistic = 4.12, and p-value = 0.001. Since $p = 0.001 < 0.05$, the hypothesis is significant. By so doing we reject H_0 3, and accept H_3 . It means that the sovereign debt is the most predictive in the model since a unit rise in the sovereign debt enhances the cross-border lending risk by 0.421 units.

H4: Exchange Rate → Cross-Border Lending Risk

Coefficient (β_4) = 0.356, t-statistic = 3.88, and p-value = 0.001. $p = 0.001 < 0.05$ hence it is statistically significant. Depending on the results we may reject H_0 4, accept H_4 . What has come out of this is that the depreciation of the exchange rate has far reaching implications on the increase in the lending risk which is the foreign currency exposure.

H5: Inflation → Cross-Border Lending Risk

Coefficient (β_5) = 0.214, t-statistic = 2.67, and p-value = 0.012, Since $p = 0.012 < 0.05$, the hypothesis is statistically significant. We accept H_5 and reject H_0 5. The macroeconomic environment (higher uncertainty) is more likely to be affected negatively by inflation, thus, making cross-border lending riskier.

Table 9: Hypothesis Testing with Statistical Basis

Hypothesis	Variable	Coefficient	t-Stat	p-Value	Result	Decision
H1	IB	0.312	3.45	0.002	Positive significant	& Supported
H2	ER	-0.278	-2.98	0.006	Negative significant	& Supported
H3	SD	0.421	4.12	0.001	Positive significant	& Supported
H4	EXR	0.356	3.88	0.001	Positive significant	& Supported
H5	INF	0.214	2.67	0.012	Positive significant	& Supported

4.12 Discussion of Findings

As per the research results, the H1 is true as the international banking in Nigeria is having a significant positive effect on the increase in cross-border lending risk. The further the financial integration across the borders, the higher are the risks they bring to the domestic banks in the external shocks and the internal systemic vulnerabilities. The global banking is more facilitative of credit and good financial intermediation but introduces more risks which are related to the global financial trends. It aligns with the outcome of the study by Şebnem Kalemli-Ozcan et al., 2023, which pointed out the reduction in domestic credit inhibits through the flow of cross-border banks despite the fact that it is riskier due to foreign financial shocks. The Xiang Li et al. 2025 financial interconnectedness poses a greater threat in the aspect of contagion that leads to the formation of weaker lending system. Banking systems of the emerging economies which have weak financial systems share the risk at international levels and in my opinion, it is good to the economies.

The paper illustrates that H2 is true since external reserves lead to the severe adverse effect of risk of cross-border lending. The outcomes show that the greater the reserves, the more safeguarded in terms of international economic shocks within the financial institutions. The external reserves of the financial institutions are their most important stabilization resource because they rely on them to generate stability in case of a disruption in the monetary system. Benigno and Fornaro (2022) found out that reserve accumulation reduces risks of unexpected capital flow, and currency crises. Positivists like Cristina Arellano et al. (2022) think that higher reserves would decrease the cost of borrowing, yet it would decrease the probability of sovereign default. The reserves held externally can help financial systems to build a stable environment which will allow better protection of investors and help to take care of cross-border financial risks.

The findings indicate that the sovereign debt has a positive influence on the cross-border lending risk which supports H3 with a tremendous impact. The results show that the higher the quantity of the public debt, the more it is exposed to a higher financial liability which further leads to the issue of the default risk that in its turn influences the lending behavior. The result confirms the conclusions of Tobias Adrian et al. (2025) who found that the correlation between sovereign debt and instability of banking sector is two-sided. The results provided by M. Ayhan Kose et al. (2021) prove that in the developed countries the threats of financial crisis increase with the increase of the degree of their public debt to a certain level. This result validates the fact that sovereign debt is a key risk multiplier that exacerbates the relationship between sovereign debt and banks as well as increasing the risk of cross-border lending.

This analysis shows that the depreciation of the exchange rate in addition to inflation increases the cross-border lending risk that verifies H4 and H5 of the research. Economic financial risk is founded on the macroeconomic unsteadiness of an economy. The current result is similar to the one by Maurice Obstfeld and his co-authors (2020) who have determined a variation in the exchange rate to increase the risks of default on a debt denominated in a foreign currency. Pierre-Olivier Gourinchas and his coauthors have shown that the uncertainty due to inflation is greater and consequently leads to the reduction of financial system stability. The study shows that changes in the exchange rates and inflation dictate the important channels of risk transmission that enhance the effects that the external and fiscal vulnerabilities exert on the cross-border lending activities.

5. CONCLUSION AND IMPLICATIONS

5.1 Conclusion

In the correlation of the cross-border lending risks in Nigeria and the international banking operations as well as the external reserve holdings and the amount of sovereign debt, the authors applied sophisticated econometric techniques in the analysis of the relationship. The findings indicate that the cross-border lending risk depends on the two key factors that involve external financial integration, and home macroeconomic conditions of the country. The findings reveal that the positive effect of international banking operation and the sovereign debt commitment on the cross-border lending risk is almost doubled as both of the factors cause an increase in financial openness and availability of a larger national debt. The researchers found that the adverse effect of external reserves was very high since it is one of the forms of life-threatening insurance of external economic shocks. The researchers discovered that inflation and depreciation of the exchange rates were the significant economic elements that augmented lending risk by the financial institutions. The entire analysis reveals that the international banking practices result in the attainment of improved financial integration and access to capital in Nigeria but the practices expose the country to the global economic shocks. Macroeconomic instability and sovereign debt along with interconnectedness of the financial systems in the global economy form a weak financial system which needs concerted policies to address cross-border lending risks.

5.2 Implications

The findings of the study include valuable data, which will guide the Nigerian policymakers and financial regulators and monetary authorities. To begin with, it is necessary to possess a sound management of the international banking affairs. The regulators need to tighten the macroprudential laws that exist in order to check the cross-border exposures and discourage the tendency of the financial institutions to indulge in needless risks. The two improvements which ought to be made in the framework are improving

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the monitoring of the operations of the lending foreign currency and setting up of stress-testing systems which would put to the test the circumstances of external shocks.

Second, external reserves are highly essential and this means that there is a necessity of developing and holding high reserve buffers. Policies which the policymakers ought to take into consideration in improving the resilience to the external shocks are those policies which raise the inflows of foreign exchange like diversification of exports and raising of non-oil revenues.

Third, positive economic impact of sovereign debt is referred to as optimal lending risk and this makes it important to ensure that there are sustainable debts management policies. Wisdom in borrowing should be achieved by the government to prevent incurring debts but in the long term, concessional financing and fiscal discipline should be achieved. It involves the organizations increasing their transparency not only on debt but also implementing mechanisms that will make the organizations accountable.

Policies of macroeconomic stability of the relation of exchange rate and inflation must exist so that there will be stability of the prices as well as will regulate the exchange rates. This will involve the improvement of monetary policy that will reduce the rate of inflation and the foreign exchange market will be more efficient. The study findings indicate that the fiscal and monetary authorities should collaborate with each other by coordinating policies. Nigeria needs a full framework to reduce the risk of cross-border lending in Nigeria and it should be a combination of financial regulation, the management of debts in Nigeria and macroeconomic stabilization.

5.3 Suggestions for Further Studies

The piece of work already sets the groundbreaking conclusions although additional researches of other areas are required.

First, it is possible to suppose that in the further study, one should include more variables in the financial sector like capitalization of the banking sector, liquidity ratios or non-performing loans that will give a better perspective of the dynamics of the financial risk. Second, the comparison of risks of cross-border lending as a region can be made using panel data methods in new studies compared to the other countries of Sub-Saharan African countries. The third avenue of research should be on institutional quality and other governance factors like regulatory effectiveness and corruption on the relationship between sovereign debt and financial risk. The use of more complex econometric models, such as structural VAR and DSGE model and nonlinear ARDL will assist the researcher to deal with the dynamic relations of variables and to determine the possible asymmetries between them when they interact. The paper will examine the impact of the new financial innovation which includes fintech and digital banking in relation to the cross-border lending risk, and financial stability in the developing countries.

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