

Institutional Quality and Banking Sector Development in G-7 and ECOWAS Countries: The Moderating Role of Political Stability, Corruption Control and Macroeconomic Volatility..

Damian U. Ajah¹, Charles O. Manasseh^{2*}, Chine Sp Logan³, Kenechukwu K. Ede⁴, Amaka L. Okeke⁵

¹ Department of Public Law, University of Nigeria, Enugu Campus, Nigeria.

Email: damian.ajah@unn.edu.ng

² Department of Banking and Finance, University of Nigeria, Nsukka, Enugu, Nigeria.

Email: charssille@gmail.com

³ Department of Public Policy, Liberty University, Lynchburg, VA, USA.

Email: cslogan11@gmail.com

⁴ Department of Economics, Godfrey Okoye University, Enugu, Nigeria.

Email: edekenechukwuk@gmail.com

⁵ Department of Banking and Finance, University of Nigeria, Nsukka, Enugu, Nigeria.

Email: amaka.okeke@unn.edu.ng

Corresponding Author

Charles O. Manasseh

Email: charssille@gmail.com

Abstract

This study examines the relationship between institutional quality and banking sector development and investigates whether political stability and absence of violence, control of corruption, and macroeconomic volatility moderate this relationship in selected G-7 and ECOWAS countries. Institutional quality is measured using rule of law, regulatory quality, government effectiveness, political stability and absence of violence, and control of corruption. Using annual data spanning 1999 to 2022, the study employs panel fully modified ordinary least squares (FM-OLS) and dynamic ordinary least squares (DOLS) estimators to examine the long run relationships among the variables. The FM-OLS results indicate that rule of law, regulatory quality, and political stability and absence of violence are positively and significantly associated with banking sector development. The DOLS estimates further show that rule of law, regulatory quality, government effectiveness, political stability and absence of violence, and control of corruption have positive and significant long run relationships with banking sector development. Comparative results indicate that G-7 countries exhibit stronger institutional quality and a more stable macroeconomic environment than ECOWAS countries. The interaction results further demonstrate that political stability and absence of violence and control of corruption positively moderate the relationship between institutional quality and banking sector development, whereas macroeconomic volatility weakens this relationship. The findings underscore the importance of strengthening institutional quality, maintaining political stability, controlling corruption, and reducing macroeconomic instability to promote banking sector development in both G-7 and ECOWAS countries....

Keywords: Legal, Regulatory structure, Bank Development, Institution, Macroeconomic Volatility..

INTRODUCTION

The banking sector occupies a central position in modern economies by mobilising savings, allocating financial resources, facilitating investment, supporting payment systems, and providing credit to households and firms. Through these functions, banks influence the efficiency of financial intermediation and the capacity of an economy to sustain investment and productive activity (Koivu 2002; Petkovski and Kjosevski 2014). The effectiveness with which banks perform these functions, however, depends not only on market incentives and macroeconomic conditions but also on the institutional environment in which financial transactions occur. Where institutions are weak, uncertainty surrounding contracts and property rights can increase, regulatory enforcement can become less predictable, and transaction costs can rise. These conditions may constrain banks' willingness and ability to mobilise deposits, extend credit, manage risks, and undertake long term investment. The quality of institutions is therefore an important consideration in understanding differences in banking sector development across economies.

Institutional quality refers broadly to the effectiveness, credibility, and predictability of the formal rules and public institutions that shape economic behaviour. It encompasses the enforcement of laws, protection of property rights, quality of regulation, effectiveness of government, political stability, and the capacity of public institutions to control corruption. These institutional dimensions influence the incentives and constraints facing economic agents and determine the extent to which financial contracts can be enforced and economic rights protected. North (1990) emphasises that institutions provide the rules within which economic exchange takes place and can reduce uncertainty by shaping incentives and expectations. In the context of financial intermediation, stronger institutions can therefore reduce the risks associated with lending and investment while creating a more predictable environment for banks, borrowers, depositors, and investors.

The rule of law represents one of the most important institutional foundations of banking sector development because banking activities depend extensively on the credibility and enforceability of financial contracts. When lenders have confidence that contractual obligations will be enforced, the uncertainty associated with credit transactions is reduced. Legal certainty can consequently strengthen banks' incentives to extend credit and undertake investment because established legal mechanisms provide protection when borrowers fail to honour their obligations (Williamson, 1981). Strong legal institutions also protect property rights, including the rights of banks to possess and recover assets and to enforce collateral agreements. The protection of such rights is particularly important in credit markets because the ability to recover collateral affects banks' willingness to lend in environments characterised by information asymmetry and elevated credit risk (Ho & Michaely, 1988; Nguyen, 2018; Su et al. 2019).

Regulatory quality and government effectiveness provide complementary institutional foundations for banking sector development. Effective regulation establishes predictable standards for financial institutions, strengthens supervisory oversight, and can reduce opportunities for regulatory arbitrage and opportunistic behaviour. Government effectiveness, in turn, reflects the capacity of public institutions to formulate and implement policies and deliver public services effectively. Where regulatory institutions are credible and public administration is effective, banks may face lower institutional uncertainty and more predictable operating conditions. Effective judicial and governance systems can also provide mechanisms for resolving disputes in a timely and predictable manner, thereby reducing the costs and risks associated with financial transactions. Strong institutional arrangements may consequently enhance the credibility of banks and strengthen the confidence of depositors, investors, and other financial stakeholders (La Porta et al., 1997, Nguyen et al., 2021; Nguyen & Thong, 2016). Greater institutional confidence may also create conditions that encourage banks to adopt innovative practices and introduce new financial products and services, thereby supporting financial deepening and broader economic activity (Giovannini et al., 2013, Manasseh et al. 2023).

The effects of institutional quality on banking sector development may nevertheless depend on the wider political environment. Political stability and the absence of violence are particularly relevant because political uncertainty can disrupt economic activity, weaken confidence, increase risk perceptions, and alter the incentives of both domestic and international investors. Banks operating in unstable political environments may face greater uncertainty regarding deposits, credit demand, asset quality, regulatory decisions, and the recovery of financial claims. Political stability, by contrast, can provide a more predictable environment for financial institutions to develop longer term lending and investment relationships. Countries characterised by effective governance, political stability, strong rule of law, and high-quality regulation may also be more attractive to international investors, including foreign financial institutions (Kaufman, et al. 2005). Political stability may therefore do more than directly influence banking sector development; it may also determine the extent to which improvements in institutional quality translate into stronger financial intermediation.

Control of corruption represents another important institutional condition. Corruption can distort the allocation of financial resources, increase the costs of economic transactions, weaken regulatory enforcement, and create incentives for rent seeking. Within the banking sector, these problems may affect credit allocation, loan assessment, regulatory compliance, and the impartial enforcement of financial rules. Effective control of corruption can reduce opportunities for such behaviour and strengthen confidence in the credibility of financial institutions and regulatory authorities. Similarly, government effectiveness can influence the banking sector through the quality of policy implementation and the capacity of public institutions to establish and maintain reliable economic and regulatory frameworks. These considerations suggest that institutional quality should not be understood solely in terms of formal rules but also in terms of the effectiveness with which those rules are implemented and enforced.

The macroeconomic environment provides a further condition under which institutions operate. Macroeconomic volatility, reflected in fluctuations in inflation, exchange rates, interest rates, and output, can increase uncertainty surrounding financial decisions and complicate banks' assessment of credit, liquidity, and market risks. Persistent macroeconomic instability may weaken the ability of banks to mobilise deposits, extend credit, and undertake long term investment even when formal institutional arrangements are relatively strong. Conversely,

macroeconomic stability can reinforce the benefits of institutional quality by improving predictability and reducing uncertainty surrounding future economic conditions. This suggests that the relationship between institutional quality and banking sector development may be conditional rather than uniform. The effectiveness of institutions in supporting financial intermediation may depend partly on whether banks operate within a stable or volatile macroeconomic environment.

These institutional and macroeconomic considerations are particularly relevant to a comparison between G 7 and ECOWAS countries. The two groups differ substantially in institutional development, financial system maturity, economic structure, and macroeconomic conditions. G 7 economies generally operate within established institutional and financial systems, while many ECOWAS economies continue to face institutional and macroeconomic constraints that can affect the efficiency and depth of financial intermediation. These differences provide an important comparative setting for examining whether institutional quality has a consistent relationship with banking sector development across economies characterised by different institutional capacities and macroeconomic environments. More importantly, the comparison creates an opportunity to examine whether political stability, corruption control, and macroeconomic stability alter the extent to which institutional quality contributes to banking sector development.

Against this background, this study investigates the relationship between institutional quality and banking sector development in selected G 7 and ECOWAS countries and examines whether political stability and absence of violence, corruption control, and macroeconomic volatility condition this relationship. Institutional quality is represented by rule of law, regulatory quality, government effectiveness, political stability and absence of violence, and control of corruption. The study addresses five related questions. First, does the rule of law significantly promote banking sector development? Second, does regulatory quality significantly influence banking sector development? Third, do government effectiveness, political stability and absence of violence, and control of corruption significantly contribute to banking sector development? Fourth, does macroeconomic volatility significantly alter the relationship between institutional quality and banking sector development? Fifth, do political stability and absence of violence, corruption control, and macroeconomic volatility significantly moderate the effects of rule of law, regulatory quality, and government effectiveness on banking sector development?

These questions are important because the existence of formal institutions does not necessarily imply that those institutions will generate similar outcomes across different political and macroeconomic environments. If institutional quality is positively associated with banking sector development, strengthening the rule of law, regulatory quality, government effectiveness, and corruption control would constitute important elements of financial sector policy. If political stability and corruption control strengthen the institutional contribution to banking development, institutional reforms would need to be accompanied by efforts to improve political predictability and accountability. Similarly, if macroeconomic volatility weakens the relationship between institutional quality and banking sector development, strengthening institutions alone may be insufficient to achieve sustained financial development. Policies that improve macroeconomic stability would therefore be necessary to ensure that institutional improvements translate into stronger financial intermediation, greater investor confidence, and a more stable banking system.

This study contributes to the existing literature in three principal ways. First, it provides a comparative examination of institutional quality and banking sector development across G 7 and ECOWAS countries. Previous studies have frequently considered institutional quality in relation to financial development, economic growth, and other macroeconomic outcomes, with comparatively less attention to the banking sector within a framework that jointly considers these two distinct country groups (Manasseh et al. 2017, Manasseh et al. 2022). The comparison is important because differences in institutional capacity and macroeconomic conditions may produce different responses of banking sector development to improvements in institutional quality. Second, the study extends the existing literature by moving beyond the direct relationship between institutions and banking sector development to examine the conditioning role of political stability and absence of violence, corruption control, and macroeconomic volatility. This distinction is important because institutional quality does not operate in isolation. The same improvement in regulatory quality or rule of law may generate different outcomes depending on the degree of political stability, the effectiveness of corruption control, and the stability of the macroeconomic environment. By incorporating interaction effects, the study provides evidence on the conditions under which institutional quality is more or less effective in supporting banking sector development.

Third, the study employs panel dynamic ordinary least squares (DOLS) and panel fully modified ordinary least squares (FMOLS) to estimate the long run relationships among the variables. These estimators provide complementary approaches for addressing endogeneity and serial correlation in panel cointegrating relationships and permit the analysis to focus on the long run association between institutional quality and banking sector development. This empirical strategy differs from Manasseh et al. (2023), who employed an ARDL framework. The application of DOLS and FMOLS therefore provides additional evidence on the long run institutional determinants of banking sector development and enables the robustness of the estimated relationships to be

assessed using alternative cointegrating estimators. The remainder of the paper is organised as follows. Section two presents the theoretical and empirical literature. Section three describes the data, measurement of variables, model specification, and estimation procedures. Section four presents the empirical results. Section five discusses the findings and their implications. Section six concludes the study and presents the policy recommendations.

2. Review of Literature

2.1. Theoretical Perspectives

The Law and Finance perspective was developed prominently by La Porta, Lopez-de-Silanes, Shleifer, and Vishny (LLSV, 1997, 1998), who examined the role of legal institutions in shaping financial and economic outcomes. Their central argument was that differences in legal systems, particularly the extent to which investors are protected, can influence patterns of corporate ownership, the quality of corporate governance, and the development and functioning of financial markets. Rather than viewing finance solely as a collection of financial transactions, the theory emphasises the importance of the legal environment within which these transactions take place. At the core of the Law and Finance framework is the protection of the rights of shareholders and creditors and the extent to which legal institutions constrain the control and expropriation of corporate resources. These rights are shaped largely by a country's corporate, securities, bankruptcy, and contract laws, as well as by the effectiveness with which such laws are implemented. Differences across countries in the strength of private property rights, investor protection, and legal enforcement can therefore affect individuals' willingness to provide capital, purchase securities, and participate in financial markets. Stronger legal protection is expected to increase investor confidence and facilitate the mobilisation of financial resources, whereas weak protection may discourage investment and constrain financial market development. The theory also recognises the importance of private contractual arrangements in addressing conflicts between managers, shareholders, and creditors. Earlier contributions by Coase (1960), Stigler (1964), and Easterbrook and Fischel (1991) suggest that participants in financial markets can design sophisticated contracts to reduce agency problems and protect their respective interests. From this perspective, an effective legal system should not only provide statutory protection for creditors and shareholders but should also create an institutional environment that permits private parties to formulate and enforce contracts efficiently. Consequently, the Law and Finance theory provides a useful framework for understanding how legal institutions, investor protection, contractual arrangements, and enforcement mechanisms jointly shape corporate finance and broader financial system development.

2.2. Empirical Overview

The law and finance perspective has received considerable attention in empirical research, particularly in studies examining how institutional quality, legal enforcement, political conditions, and regulatory effectiveness shape financial-sector development. Manasseh et al. (2023) investigated the relationship between legal institutions, political conditions, and banking-sector development across G-7 and ECOWAS countries using quarterly data covering 1970–2019 and a panel ARDL approach. Their findings revealed a significant connection between legal and political factors and banking-sector development. They also observed that the legal institutions within the G-7 countries tend to be more pragmatic and effective than those prevailing in ECOWAS countries. In another study, Manasseh et al. (2023) examined the interaction between digital finance, financial inclusion, and economic growth across 19 COMESA member states. The study incorporated regulatory quality, the rule of law, and government effectiveness as moderating institutional factors. Using annual data from 1997–2018 and the panel ARDL technique, the authors found that digital finance and financial inclusion play important roles in promoting regional economic growth. The findings further suggest that the quality of institutions matters when assessing how financial innovations translate into broader economic outcomes.

Gani and Rasul (2020) examined the role of institutional quality in determining the volume of bank credit in 46 developing countries. Their analysis employed two-stage least squares (2SLS) and panel-corrected standard errors (PCSE). The findings showed that the strength of legal institutions, regulatory quality, and the rule of law significantly influence the provision of bank credit. However, the study was based on only four institutional characteristics, which were not standardised into a common institutional measure, thereby limiting the strength and comparability of its findings. Khan et al. (2020b) investigated the institutional determinants of financial development in 15 emerging economies using institutional data obtained from the International Country Risk Guide (ICRG) for 1984–2017 and the Worldwide Governance Indicators (WGI) for 1996–2016. Employing a 2SLS estimation technique, the researchers constructed composite institutional quality indices through principal component analysis (PCA). Financial development was represented by indicators of stock-market performance and banking-sector development. Their results indicated that political stability, government effectiveness, and the rule of law exert positive and significant effects on financial development, whereas voice and accountability was found to have a negative influence. Similarly, Khan et al. (2020a) assessed the relationship between institutional

conditions and financial development using bank credit to the private sector and WGI indicators. Based on GMM estimation, their results showed that political stability, regulatory quality, and control of corruption contribute positively to financial development. However, the rule of law was found to exert a negative effect across the 189 countries examined over the period 2002–2017. This finding demonstrates that the influence of individual institutional dimensions may differ considerably across countries and institutional settings.

Aluko and Ajayi (2018) examined the factors responsible for banking-sector development in 25 Sub-Saharan African countries over the period 1997–2014. Using the GMM estimator and the arithmetic mean of the six Worldwide Governance Indicators as a measure of institutional quality, they found that stronger institutions promote bank lending to the private sector. Since private-sector credit was used as an indicator of banking-sector depth, the findings suggest that improvements in institutional quality can contribute to deeper banking systems in the region. Ntow-Gyamfi et al. (2019) further explored the institutional dimension of financial development by examining 48 African countries between 1990 and 2016. Using GMM, PCSE, and fixed-effects models, the study found that regulatory quality, particularly when interacting with financial development, has a significant and positive effect on inclusive growth. This result highlights the importance of effective regulatory institutions in ensuring that financial-sector development produces broader economic benefits. Aluko and Ibrahim (2020) investigated the relationship between financial development and economic growth in 28 Sub-Saharan African countries between 1996 and 2015. Their findings indicated that financial development has a positive and significant effect on economic growth, irrespective of whether institutional quality within a country is relatively strong or weak. The result reinforces the broader argument that financial-sector development can serve as an important channel through which economic activity is strengthened.

Kebede et al. (2021) examined the effects of foreign banks and institutional quality on financial inclusion in 17 African countries over the period 2004–2018. The researchers combined principal component analysis (PCA) with Worldwide Governance Indicators to construct an institutional quality index and employed fixed-effects and GMM estimators. Their findings revealed that foreign banks are more effective in promoting financial inclusion when they operate within environments characterised by stronger institutional quality. This suggests that the benefits associated with international banking participation depend partly on the institutional conditions of the host economy. Evidence from other studies also supports the importance of institutional quality for the performance and efficiency of financial institutions. Abaidoo and Agyapong (2023), for example, reported a strong relationship between institutional quality and financial-institution efficiency in Sub-Saharan African countries. Their findings identified the rule of law, government effectiveness, regulatory quality, and control of corruption as important factors contributing to the efficiency of financial institutions. Similarly, Chan, Aktan, Burton, and Koh (2021) found that institutional quality improves the efficiency with which foreign banks allocate resources. Their evidence further indicates that institutional quality has a positive effect on the financial efficiency of Italian cooperative banks, particularly through stronger corruption-control mechanisms.

Iqbal Hussain, Kot, Kamarudin, and Huang Yee (2021) also examined the institutional factors associated with the performance of microfinance institutions. Their findings showed that government size and regulatory quality play important roles in improving the effectiveness of microfinance institutions. Using a semi-parametric regression approach, Egbendewe and Oloufade (2020) investigated the effect of institutional quality on banking-sector competitiveness in developing countries. The study established that the rule of law, government effectiveness, and control of corruption significantly influence the efficiency and competitiveness of the banking industry. Beyond institutional quality, another strand of the literature emphasises the importance of political stability, macroeconomic conditions, and the absence of violence in shaping financial-sector outcomes. Al Masud and Hossain (2021) examined the implications of inflation for bank asset quality within the broader context of macroeconomic instability. They argued that rising prices of goods and services can increase banks' operating costs, while banks may respond by raising lending rates. The resulting increase in interest income may help compensate for losses associated with impaired loans and potentially support the maintenance of asset quality. Arrawatia et al. (2019) investigated the determinants of asset quality among Indian banks using a system GMM approach. Their findings showed that real interest rates and economic growth positively influence asset quality, whereas inflation has a negative effect. The study explained that higher national productivity can strengthen the quality of bank assets by expanding markets, supporting business growth, improving liquidity conditions, and increasing borrowers' capacity to meet their repayment obligations. These developments can consequently reduce the incidence of non-performing loans.

Political conflict and instability have likewise been identified as important threats to government revenue and financial stability. Barrett (2018), in examining the consequences of violence in Afghanistan, estimated that the conflict resulted in an overall revenue loss of approximately \$3 billion between 2005 and 2016, largely because of a substantial deterioration in revenue-collection efficiency. Rother et al. (2016) similarly reported that government revenue in Yemen declined by almost 60% following the outbreak of conflict in 2015. They argued that the weakening of fiscal positions across conflict-affected countries in the Middle East and North Africa was associated with declining external and domestic sources of revenue alongside increasing government expenditure.

The IMF (2019) further reported that conflicts in Sub-Saharan Africa can reduce tax revenue by approximately 2% of GDP. Such revenue losses can distort the composition of public expenditure and place additional pressure on fiscal balances. These findings demonstrate that political instability and violence can weaken the institutional and fiscal foundations necessary for a stable financial system.

Corruption also represents an important institutional factor influencing access to finance. Statnik and Vu (2020), in their study titled “Does corruption impact the demand for bank credit? A study of discouraged borrowers in Asian emerging countries”, examined how corruption affects banking-sector development. Their findings showed that corruption substantially constrains bank credit in emerging Asian economies. The study suggests that where corruption is widespread, potential borrowers may become discouraged from seeking formal bank financing, thereby limiting the ability of the banking system to perform its financial-intermediation function. Taken together, the empirical literature demonstrates that the development and efficiency of financial systems are closely connected to the quality of legal, regulatory, political, and macroeconomic institutions. While stronger rule of law, regulatory quality, government effectiveness, political stability, and corruption control generally support financial development, the evidence also shows that the effects of individual institutional dimensions can vary across countries and regions. This variation provides a strong basis for further empirical investigation into how institutional and legal conditions influence financial-sector development, particularly within developing and emerging economies.

3. Methodology and Data Description

The empirical model is grounded in the law and finance theory developed by La Porta, Lopez de Silanes, Shleifer, and Vishny (LLSV, 1997, 1998), which emphasises the importance of legal institutions and regulatory frameworks in shaping the development and functioning of financial systems. Building on this theoretical foundation, the study examines the extent to which the quality of the legal and regulatory environment influences banking sector development across African countries. The empirical relationship is estimated using the Fully Modified Ordinary Least Squares (FMOLS) and Dynamic Ordinary Least Squares (DOLS) estimators. The choice of FMOLS and DOLS is motivated by their suitability for estimating long-run relationships among cointegrated panel variables while accounting for some of the econometric problems associated with conventional least squares estimation. In particular, FMOLS corrects for serial correlation and endogeneity that may arise from the correlation between the explanatory variables and the error term in the cointegrating relationship (Phillips & Hansen, 1990). The panel FMOLS framework developed by Pedroni (2000) further accommodates heterogeneity across cross-sectional units, making it appropriate for cross-country studies where the long-run effects of institutional and economic variables may differ across countries. Similarly, the panel cointegration framework developed by McCoskey and Kao (1998) and Kao and Chiang (2000) provides a basis for estimating and testing long-run relationships in heterogeneous panel settings.

FMOLS is particularly useful in the present study because conventional OLS estimates may be biased and inconsistent when the regressors are endogenous or when the error term exhibits serial correlation. The estimator applies nonparametric corrections to the conventional least squares estimator to account for these problems and thereby produces more reliable estimates of the long-run coefficients. Moreover, the panel FMOLS approach permits differences across countries in the underlying cointegrating relationships, which is important given the substantial institutional, regulatory, and financial differences among African economies. DOLS is employed as a complementary estimator and robustness check. Following Stock and Watson (1993), DOLS augments the long-run cointegrating regression with leads and lags of the first differences of the explanatory variables. The inclusion of these terms helps account for potential endogeneity and serial correlation associated with the long-run relationship. Kurozumi and Hayakawa (2009) further show that the appropriate DOLS estimator possesses desirable asymptotic properties in cointegrated systems. Consequently, employing both FMOLS and DOLS enables the study to assess whether the estimated long-run effects remain stable across alternative estimation procedures. Accordingly, the general long-run relationship between banking sector development and the legal and regulatory environment is specified as:

$$BSD_{it} = \alpha_i + \beta_1 REQ_{it} + \beta_2 GEF_{it} + \beta_3 ROL_{it} + \beta_4 BBRC_{it} + \beta_5 INTR_{it} + \varepsilon_{it} \quad (1)$$

Where BSD_{it} represents banking sector development in country i at time t ; REQ_{it} denotes regulatory quality; GEF_{it} represents government effectiveness; ROL_{it} captures the rule of law; $BBRC_{it}$ denotes bank branches per 100,000 adults; $INTR_{it}$ represents the interest rate; α_i is the country-specific intercept; $\beta_1, \beta_2, \dots, \beta_5$ are the long-run coefficients to be estimated; and ε_{it} is the error term.

The FMOLS estimator is applied to Equation (1) after establishing the existence of a long-run cointegrating relationship among the variables. The estimator corrects the conventional least squares coefficients for the effects of endogeneity and serial correlation arising in the cointegrating regression. Thus, the resulting coefficients provide estimates of the long-run effects of regulatory quality, government effectiveness, rule of law, bank branch penetration, and interest rates on banking sector development. To provide an additional assessment of the long-

run relationship, the study employs the DOLS estimator. Following Stock and Watson (1993), the DOLS specification augments Equation (1) with leads and lags of the first differences of the explanatory variables:

$$BSD_{it} = \alpha_i + \beta_1 REQ_{it} + \beta_2 GEF_{it} + \beta_3 ROL_{it} + \beta_4 BBRC_{it} + \beta_5 INTR_{it} + \sum_{k=-p}^q \Gamma_k \Delta X_{i,t+k} + \varepsilon_{it} \quad (2)$$

Where $X_{it} = (R, E, Q_{it}, G, EF_{it}, ROL_{it}, BBRC_{it}, INTR_{it})'$ is the vector of explanatory variables. Δ denotes the first difference operator, p and q represent the numbers of leads and lags included in the DOLS specification, respectively, and Γ_k represents the associated short-run adjustment coefficients.

The inclusion of leads and lags of the differenced regressors in Equation (2) controls for possible feedback effects between the explanatory variables and the error term and reduces the influence of serial correlation in the cointegrating regression. DOLS therefore provides an alternative estimate of the long-run coefficients and serves as a robustness check for the FMOLS results. In this study, greater confidence is placed in the estimated long-run relationship where the magnitude, direction, and statistical significance of the coefficients remain broadly consistent across the FMOLS and DOLS estimators. Importantly, FMOLS and DOLS are used here specifically to estimate the long-run cointegrating relationship rather than to model short-run dynamics. Their application is therefore conditional on evidence of panel cointegration among the variables. This distinction ensures consistency between the preliminary unit root and cointegration tests and the subsequent estimation strategy.

3.2. Data Description and Sources

The study employs annual panel data covering 22 countries, comprising the 15 member states of the Economic Community of West African States (ECOWAS) and the seven countries of the Group of Seven (G7), over the period 1999 to 2022. The choice of the study period and sample is primarily determined by the availability and consistency of the required data across the selected countries. The data are obtained from two principal sources: the World Bank's World Development Indicators (WDI) and World Governance Indicators (WGI). The indicators of the legal and regulatory structure are captured by rule of law (ROL), regulatory quality (REQ), and government effectiveness (GEF). These variables reflect the extent to which institutional and regulatory frameworks support the effective functioning of economic and financial systems. Bank credit to the private sector is employed as the proxy for banking sector development and represents the principal outcome variable. The empirical specification also incorporates financial deepening, measured by broad money as a percentage of GDP, and the exchange rate (EXR) as control variables. In addition, political stability and absence of violence (PSAV), control of corruption (COC), and macroeconomic volatility are introduced as moderating variables to account for the potential conditioning effects of political and macroeconomic environments on the relationship between legal and regulatory institutions and banking sector development.

Prior to the estimation of the long-run relationships, a series of preliminary diagnostic and exploratory analyses are conducted. These include descriptive statistics, Spearman rank correlation analysis, and panel unit root tests, which provide information on the distribution, pairwise associations, and stationarity properties of the variables, respectively. Following the preliminary analyses, panel cointegration tests are employed to establish whether a stable long-run equilibrium relationship exists among the variables. The FMOLS and DOLS estimators are subsequently employed to estimate the long-run coefficients. Post-estimation diagnostic tests are also conducted to assess the reliability and adequacy of the estimated models. These include tests for normality, serial correlation, heteroscedasticity, and model specification using the Ramsey RESET test. These procedures help establish whether the estimated models satisfy the relevant statistical assumptions and whether the reported long-run relationships are robust. The operational definitions, measurement units, and respective data sources for all variables employed in the analysis are presented in Table 1.

Table 1: Variables and Source

Acronyms	Definition	Source
BCPS	Bank Credit to the Private sector	https://data.worldbank.org/indicator/FM.AST.PRVT.GD.ZS
ROL	Rule of law	https://www.worldbank.org/en/publication/worldwide-governance-indicators
REQ	Regulatory quality	https://www.worldbank.org/en/publication/worldwide-governance-indicators
GEF	Government effectiveness	https://www.worldbank.org/en/publication/worldwide-governance-indicators
PSA	Political stability and absence of violence	https://www.worldbank.org/en/publication/worldwide-governance-indicators

COC	Corruption control	https://www.worldbank.org/en/publication/worldwide-governance-indicators
MEV	Macroeconomic volatility	https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
M2/GDP	Financial deepening	https://data.worldbank.org/indicator/FM.LBL.BMNY.GD.ZS
EXR	Exchange rate	https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG
		https://data.worldbank.org/indicator/PA.NUS.FCRF

Source: Authors' Conception. The data were generated for the ECOWAS member nations, which include Benin, Burkina Faso, Cabo Verde, Cote D'Ivoire, Gambia, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Niger, Nigeria, Senegal, Sierra Leone, and Togo, as well as the G7 nations, which include Canada, France, Germany, Italy, Japan, the United Kingdom, and the United States.

3.3 Descriptive Statistics and Correlation Analysis

Descriptive statistics and Spearman's rank correlation analysis were conducted to provide an initial assessment of the distributional characteristics and pairwise relationships among the variables. The descriptive statistics reported in Table 2 include the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera statistic, and its associated probability value. These measures provide useful information about the central tendency, dispersion, asymmetry, and distributional properties of the variables used in the empirical analysis. As reported in Table 2, the mean values of the variables range from -0.879 for regulatory quality (REQ) to 1.779 for control of corruption (COC). The corresponding median values range from -0.954 for political stability and absence of violence (PSA) to 1.268 for macroeconomic volatility (MEV). The standard deviations range from 0.542 for REQ to 3.179 for COC, indicating considerable differences in the degree of dispersion across the variables. The maximum values range from 0.619 for REQ to 30.46 for COC, while the minimum values range from -9.437 for MEV to 0.002 for exchange rate (EXR). These differences suggest substantial variation in the characteristics of the sampled countries over the study period. The skewness coefficients indicate that some variables are moderately asymmetric. BCPS, ROL, REQ, PSA, and EXR exhibit positive skewness, whereas GEF and MEV display negative skewness. COC records particularly high positive skewness, indicating the presence of observations substantially above its mean.

The kurtosis statistics also vary considerably across the variables. While some variables have kurtosis values close to the benchmark of three associated with a normal distribution, COC and EXR exhibit substantially higher values, suggesting relatively heavy-tailed distributions. The Jarque-Bera statistics provide further evidence concerning the distributional properties of the variables. The probability values reported in Table 2 are below the 5% significance level for all variables. Therefore, the null hypothesis of normality is rejected for each series. This finding indicates that the variables do not strictly follow a normal distribution. However, non-normality at the descriptive stage does not, in itself, invalidate the subsequent panel estimation procedures, particularly where the estimators employed are designed to accommodate the distributional and dependence characteristics of panel data.

Table 2: Descriptive Statistics

Statistic	BCPS	ROL	REQ	GEF	PSA	COC	MEV	M2/GDP	EXR
Mean	-0.807	-0.725	-0.879	-0.632	-0.828	1.779	1.360	0.771	1.256
Median	-0.846	-0.857	-0.908	-0.568	-0.954	1.001	1.268	0.763	0.275
Maximum	0.900	1.244	0.619	1.223	0.672	30.46	6.742	1.998	13.81
Minimum	-2.227	-1.627	-1.887	-2.847	-1.918	0.003	-9.437	-1.588	0.002
Std. Dev.	0.575	0.636	0.542	0.881	0.621	3.179	2.080	0.673	2.538
Skewness	0.299	1.127	0.484	-0.047	0.622	5.161	-0.640	-0.862	3.084
Kurtosis	3.411	3.831	2.879	2.295	2.629	35.83	5.523	4.754	12.13
Jarque Bera	11.62	127.10	21.01	11.10	37.11	2606.00	176.20	133.20	2672.00
Probability	0.003	0.000	0.000	0.003	0.000	0.000	0.000	0.000	0.000
Observations	528	528	528	528	528	528	528	528	528

Source: Authors' Concept

3.4. Spearman Correlation Analysis

Spearman's rank correlation coefficient was employed to examine the direction and strength of the pairwise association between banking sector development and the explanatory variables. The Spearman coefficient ranges from -1 to +1. A coefficient approaching +1 indicates a strong positive association, whereas a coefficient approaching -1 indicates a strong negative association. Values close to zero indicate a weak or negligible monotonic relationship. For the purposes of interpretation, coefficients above approximately ± 0.70 may be regarded as strong associations, while coefficients below approximately ± 0.40 generally indicate relatively weak associations. The results presented in Table 3 reveal substantial variation in the relationships among the variables. Banking sector development (BCPS) exhibits strong positive associations with rule of law (ROL), regulatory

quality (REQ), government effectiveness (GEF), political stability and absence of violence (PSA), and financial deepening (M2/GDP), with correlation coefficients of 0.711, 0.862, 0.562, 0.833, and 0.901, respectively. These results suggest that countries characterised by stronger legal and institutional conditions and greater financial depth tend to exhibit higher levels of banking sector development. Among the institutional variables, REQ has a strong positive association with ROL (0.795) and PSA (0.901), while GEF is positively associated with ROL (0.637), REQ (0.620), and PSA (0.720). The particularly high correlation between REQ and PSA suggests that improvements in regulatory quality tend to occur alongside greater political stability and the absence of violence. Nevertheless, correlation coefficients describe association rather than causation and should therefore not be interpreted as evidence of a causal relationship. COC displays relatively weak relationships with most of the institutional variables. Its correlation with BCPS is positive but modest at 0.228, while its associations with ROL (0.079), REQ (0.031), GEF (−0.055), and PSA (0.032) are comparatively small. COC, however, has a moderately negative relationship with MEV (−0.537), suggesting that stronger control of corruption is associated with lower macroeconomic volatility within the sample. MEV exhibits a strong negative association with BCPS (−0.868), indicating that greater macroeconomic volatility is associated with lower banking sector development. Similarly, EXR is negatively correlated with BCPS (−0.859) and GEF (−0.831). In contrast, M2/GDP is strongly and positively correlated with BCPS (0.901), providing preliminary evidence of a close relationship between financial deepening and banking sector development.

Table 3: Spearman's Correlation Matrix

Variables	BCPS	ROL	REQ	GEF	PSA	COC	MEV	M2/GDP	EXR
BCPS	1.000								
ROL	0.711	1.000							
REQ	0.862	0.795	1.000						
GEF	0.562	0.637	0.620	1.000					
PSA	0.833	0.882	0.901	0.720	1.000				
COC	0.228	0.079	0.031	−0.055	0.032	1.000			
MEV	−0.868	−0.014	−0.010	0.021	−0.017	−0.537	1.000		
M2/GDP	0.901	0.031	0.043	0.657	0.068	0.156	0.128	1.000	
EXR	−0.859	−0.468	−0.117	−0.831	0.011	−0.092	0.063	0.623	1.000

Source: Authors' Concept

The correlation matrix also provides an initial assessment of potential multicollinearity among the explanatory variables. The relatively high correlations among BCPS, ROL, REQ, PSA, and M2/GDP warrant attention; however, pairwise correlation alone is insufficient to establish the presence of problematic multicollinearity. More importantly, the correlation analysis is descriptive and does not establish causal relationships. The subsequent econometric analysis therefore relies on the unit root, cointegration, FMOLS, and DOLS procedures to formally examine the long-run relationships among the variables.

3.5. Panel Unit Root Tests

Establishing the stationarity properties of the variables is an essential step before estimating the long-run relationships. In particular, the presence of unit roots can lead to spurious regression results when non-stationary series are analysed without accounting for their stochastic properties. Accordingly, panel unit root tests are conducted to determine the order of integration of each variable. The study employs the Levin, Lin, and Chu (LLC) test proposed by Levin, Lin, and Chu (2002), the Im, Pesaran, and Shin (IPS) test developed by Im, Pesaran, and Shin (2003), and the Fisher-type ADF and Fisher-type PP tests associated with Maddala and Wu (1999). The use of several complementary panel unit root procedures strengthens the reliability of the inference because the tests differ in their assumptions concerning cross-sectional heterogeneity and the behaviour of individual panel units. The null hypothesis for the panel unit root tests is that the series contains a unit root, implying non-stationarity, while the alternative hypothesis indicates stationarity. The decision rule is based on the associated probability value: the null hypothesis is rejected when the probability value is below the 5% significance level; otherwise, the null hypothesis is not rejected. The results of the panel unit root tests are presented in Table 4.

Table 4: Unit Root Tests Results

Variable	LLC	IPS	Fisher ADF	Fisher PP	Integration Order
CPS	−21.684*** (0.000)	−19.846*** (0.000)	364.72*** (0.000)	427.56*** (0.000)	I(1)
ROL	−20.781*** (0.000)	−17.593*** (0.000)	318.46*** (0.000)	359.81*** (0.000)	I(1)

REQ	-19.472*** (0.000)	-18.126*** (0.000)	327.84*** (0.000)	369.27*** (0.000)	I(1)
GEF	-2.364** (0.018)	-1.892** (0.029)	68.73** (0.021)	79.42*** (0.001)	I(0)
PSA	-21.437*** (0.000)	-18.947*** (0.000)	345.62*** (0.000)	406.75*** (0.000)	I(1)
MEV	-5.672*** (0.000)	-7.816*** (0.000)	151.84*** (0.000)	179.63*** (0.000)	I(0)
COC	-6.927*** (0.000)	-8.143*** (0.000)	152.67*** (0.000)	162.91*** (0.000)	I(0)
M2/GDP	-5.816*** (0.000)	-7.934*** (0.000)	143.26*** (0.000)	141.57*** (0.000)	I(0)
EXR	-4.637*** (0.000)	-3.914*** (0.000)	97.83*** (0.000)	101.76*** (0.000)	I(0)

Source: Authors' Concept. ***, ** and * denote statistical significance at the 1%, 5% and 10% levels, respectively. (.); probability values.

The unit root test results reported in Table 4 indicate that the variables exhibit mixed orders of integration, with some variables stationary at level, I(0), and others becoming stationary after first differencing, I(1). Specifically, GEF, MEV, COC, M2/GDP, and EXR are stationary at level, whereas CPS, ROL, REQ, and PSA attain stationarity after first differencing. This combination of I(0) and I(1) variables provides evidence of heterogeneous orders of integration across the variables included in the model. An important implication of these findings is that none of the variables is integrated of order two, I(2). This is particularly important for the subsequent empirical analysis because the presence of an I(2) variable would invalidate the application of the ARDL bounds testing procedure. The results therefore establish that the variables satisfy the required integration condition for proceeding with the bounds testing approach.

The consistency of the results across the LLC, IPS, Fisher ADF, and Fisher PP procedures further strengthens the evidence regarding the stationarity properties of the variables. Although the tests differ in their underlying assumptions and treatment of cross-sectional heterogeneity, they generally provide evidence that the variables become stationary either at levels or after first differencing. Accordingly, the null hypothesis of a unit root is rejected for the relevant variables at their respective orders of integration. Overall, the unit root results provide sufficient evidence to proceed with the subsequent cointegration analysis. The coexistence of I(0) and I(1) variables, together with the absence of any I(2) variable, confirms the suitability of the dataset for the ARDL bounds testing framework and provides a sound basis for examining the existence of a long run equilibrium relationship among institutional quality, macroeconomic conditions, and banking sector development.

4. Results Presentations

4.1. Panel FM-OLS and DOLS Estimation

The estimated results from the panel FMOLS and DOLS regressions are presented in three stages to provide a clear assessment of the relationship between legal and regulatory institutions and banking sector development across the different country groupings. First, the analysis is conducted for the combined sample of G7 and ECOWAS countries, thereby providing evidence for the full panel and capturing the overall relationship between the institutional variables and banking sector development (Table 5). Second, the estimation is restricted to the G7 countries to examine whether the observed relationships are consistent within the advanced economies of the sample (Table 6). Third, the analysis is conducted exclusively for the ECOWAS member states to determine whether the relationships differ within the West African sub sample (Table 7). Across all three specifications, the analysis incorporates interaction terms involving political stability and absence of violence (PSA), control of corruption (COC), and macroeconomic volatility (MEV). These interaction effects are introduced to determine whether the political, institutional, and macroeconomic environments condition the relationship between legal and regulatory institutions and banking sector development. The comparative presentation of the results across the full sample, G7 countries, and ECOWAS countries also makes it possible to assess whether the estimated relationships vary according to the institutional and economic characteristics of the respective country groups.

Table 6: Estimated FM-OLS and DOLS Results – Panel

Variables	FMOLS					DOLS				
	(1)	(2)	(3)	(4)	(5)	(1)	(2)	(3)	(4)	(5)

BCPS (-1)	-0.083* ** (0.000)	0.631* ** (0.000)	0.579* ** (0.000)	0.641* ** (0.000)	0.570* ** (0.000)	-0.134* ** (0.000)	0.456* ** (0.000)	0.410* ** (0.000)	0.459* ** (0.000)	0.404* ** (0.000)
ROL	0.209* ** (0.000)			0.155* ** (0.000)	0.102* ** (0.000)	0.199* ** (0.000)			0.206* ** (0.000)	0.146* ** (0.000)
REQ	0.479* ** (0.000)		0.305* ** (0.000)		0.268* ** (0.000)	0.466* ** (0.000)		0.382* ** (0.000)		0.352* ** (0.000)
GEF	0.011 (0.635)			0.044* ** (0.002)	0.041* ** (0.008)	0.026* * (0.016)			0.072* ** (0.000)	0.073* ** (0.000)
PSA		0.293* ** (0.000)					0.427* ** (0.000)			
MEV		0.002 (0.674)					-0.065 (0.896)			
COC		0.003 (0.541)					0.092* ** (0.000)			
M2/GDP	0.082* ** (0.000)	0.212* ** (0.000)	0.219* ** (0.000)	0.0159 (0.224)	0.214* ** (0.000)	0.010 (0.354)	0.007 (0.633)	0.017 (0.224)	0.016 (0.243)	0.016 (0.231)
EXR	-0.019 (0.436)	-0.010* * (0.034)	-0.004 (0.453)	-0.008 (0.102)	-0.004 (0.437)	-0.002 (0.621)	-0.014* ** (0.007)	-0.007 (0.153)	-0.011* * (0.031)	-0.007 (0.140)
ROL*PSA			0.116* ** (0.000)					0.055* ** (0.004)		
REQ*PSA			0.067* ** (0.000)					0.114* ** (0.000)		
GEF*PSA				0.113* ** (0.000)						0.031* ** (0.006)
ROL*MEV				-0.071* ** (0.000)						-0.416* ** (0.000)
REQ*MEV					-0.012* *					-0.059* **

					(0.012)					(0.000)
GEF*MEV					- 0.014* ** (0.000)					- 0.007* * (0.043)
ROL*COC			0.044* ** (0.002)					0.006* * (0.034)		
REQ*COC			0.003* ** (0.004)					0.085* ** (0.000)		
GEF*COC			0.276* ** (0.000)					0.083* ** (0.000)		
No. of Observations	462	506	506	506	506	684	506	506	506	506
Normality	50.32 (0.000)	8106.0 0 (0.000)	56.12 (0.000)	8085.0 0 (0.000)	2712.0 0 (0.000)	50.32 (0.000)	8106.0 0 (0.000)	56.12 (0.000)	8085.0 0 (0.000)	2712.0 0 (0.000)
Serial Correlation	0.388 (0.682)	0.302 (0.749)	0.780 (0.469)	0.145 (0.865)	0.662 (0.525)	0.388 (0.682)	0.302 (0.741)	0.781 (0.469)	0.145 (0.865)	0.662 (0.525)
Ramsey RESET	-0.301 (0.001)	-0.646 (0.000)	-0.304 (0.012)	-0.451 (0.000)	-0.313 (0.000)	-0.301 (0.000)	-0.646 (0.000)	-0.304 (0.012)	-0.451 (0.000)	-0.313 (0.000)
Heteroscedas ticity	1.123 (0.378)	0.710 (0.641)	0.814 (0.569)	1.347 (0.275)	0.585 (0.738)	1.123 (0.378)	0.710 (0.641)	0.814 (0.569)	1.347 (0.275)	0.585 (0.738)
R ²	0.7877	0.922	0.928	0.920	0.929	0.481	0.931	0.936	0.929	0.935

Source: Authors' Concept. ***, ** and * represents 1%, 5% and 10% significant levels. (.); represents the probability values.

The panel FMOLS and DOLS estimates reported in Table 5 provide evidence on the long run relationship between banking sector development and the legal, regulatory, political, and macroeconomic conditions of the G7 and ECOWAS countries. Five alternative specifications are estimated under each estimator. The first specification focuses on the direct effects of the core institutional variables, while the subsequent specifications introduce political stability and absence of violence (PSA), control of corruption (COC), macroeconomic volatility (MEV), and their interactions with the legal and regulatory variables. Presenting the results across alternative specifications makes it possible to assess whether the estimated institutional effects remain robust after accounting for potentially important moderating factors. The first FMOLS specification indicates that the lagged value of banking sector development, measured by bank credit to the private sector (BCPS), has a negative and statistically significant coefficient of -0.083 ($p < 0.01$). The corresponding DOLS coefficient is also negative and statistically significant at -0.134 ($p < 0.01$). This suggests a negative association between the lagged and current levels of BCPS in the baseline specification. However, this coefficient should not be interpreted in isolation as evidence that higher previous bank credit necessarily reduces current banking sector development, particularly because its sign changes when additional institutional and moderating variables are introduced. The evidence for the core institutional variables is considerably more consistent. Rule of law (ROL) has a positive and statistically significant coefficient of 0.209 ($p < 0.01$) in the baseline FMOLS specification, while the corresponding DOLS estimate is 0.199 ($p < 0.01$). This indicates that improvements in the rule of law are associated with higher levels of banking sector development in the long run. The finding is consistent with the law and finance perspective of La Porta et al. (1997, 1998), which argues that stronger legal institutions enhance the enforcement of financial contracts and thereby create a more supportive environment for financial intermediation.

Similarly, regulatory quality (REQ) records positive and statistically significant coefficients of 0.479 ($p < 0.01$) under FMOLS and 0.466 ($p < 0.01$) under DOLS. Among the principal institutional variables, REQ therefore exhibits a relatively large positive association with BCPS. The consistency in both magnitude and statistical significance across the two estimators strengthens the evidence that regulatory quality is an important institutional determinant of banking sector development. The coefficient of government effectiveness (GEF) in the baseline FMOLS model is positive but statistically insignificant at 0.011 ($p = 0.635$). This indicates that, when considered independently in the baseline specification, there is insufficient statistical evidence that government effectiveness has a direct long run effect on BCPS. However, this result changes considerably once the interaction specifications are introduced. Specification 2 introduces PSA, MEV, and COC separately. Under FMOLS, political stability and absence of violence (PSA) has a positive and statistically significant coefficient of 0.293 ($p < 0.01$). The corresponding DOLS estimate is 0.427 ($p < 0.01$). These results suggest that a more stable political environment is associated with greater banking sector development. Political stability can reduce uncertainty surrounding financial transactions, strengthen confidence in financial institutions, and encourage both deposit mobilisation and private sector lending.

By contrast, macroeconomic volatility (MEV) has a very small and statistically insignificant coefficient under both estimators. The FMOLS estimate is 0.002 ($p = 0.674$), while the DOLS estimate is -0.065 ($p = 0.896$). Thus, the direct effect of MEV on BCPS is not statistically distinguishable from zero in the specification where it enters independently. The coefficient of control of corruption (COC) is also statistically insignificant under FMOLS, with an estimate of 0.003 ($p = 0.541$). However, its DOLS coefficient is positive and statistically significant at 0.092 ($p < 0.01$). This difference between the estimators indicates that the evidence for a direct effect of corruption control is less robust than that obtained for ROL, REQ, and PSA. It would therefore be inappropriate to conclude unequivocally that corruption control has a direct positive effect on banking sector development based solely on these estimates.

The interaction specifications provide stronger evidence regarding the conditional role of the political environment. The interaction between ROL and PSA is positive and statistically significant under both FMOLS and DOLS, with coefficients of 0.116 ($p < 0.01$) and 0.055 ($p < 0.01$), respectively. This indicates that political stability strengthens the positive relationship between the rule of law and banking sector development. A similar pattern is observed for $REQ \times PSA$. The FMOLS coefficient is 0.067 ($p < 0.01$), while the DOLS coefficient is 0.114 ($p < 0.01$). The positive and significant interaction indicates that the contribution of regulatory quality to banking sector development becomes stronger in environments characterised by greater political stability and the absence of violence. The interaction between GEF and PSA is likewise positive and statistically significant. The FMOLS estimate is 0.113 ($p < 0.01$), compared with 0.031 ($p < 0.01$) under DOLS. This is particularly important because GEF is statistically insignificant in the baseline FMOLS specification. The interaction results therefore suggest that government effectiveness may become more relevant to banking sector development when accompanied by a stable political environment. Taken together, these results provide evidence of a complementary relationship between political stability and institutional quality. Strong legal and regulatory institutions appear to generate greater benefits for banking sector development when they operate within a politically stable environment.

The results change substantially when macroeconomic volatility interacts with the institutional variables. The interaction between ROL and MEV is negative and statistically significant in both estimators. The FMOLS coefficient is -0.071 ($p < 0.01$), while the DOLS coefficient is -0.416 ($p < 0.01$). The negative sign indicates that greater macroeconomic volatility weakens the positive contribution of the rule of law to banking sector development. The interaction between REQ and MEV is similarly negative and statistically significant, with coefficients of -0.012 ($p < 0.05$) for FMOLS and -0.059 ($p < 0.01$) for DOLS. This suggests that macroeconomic instability reduces the effectiveness of regulatory quality in promoting banking sector development. The same pattern is obtained for $GEF \times MEV$. The FMOLS coefficient is -0.014 ($p < 0.01$), while the DOLS coefficient is -0.007 ($p < 0.05$). The negative interaction indicates that macroeconomic volatility undermines the contribution of government effectiveness to banking sector development. These findings are economically important. They imply that institutional reforms alone may not be sufficient to produce sustained improvements in banking sector development when economies are exposed to substantial macroeconomic instability. A predictable macroeconomic environment appears to be necessary for the benefits associated with stronger legal and regulatory institutions to translate effectively into financial intermediation.

4.2. Panel FM-OLS and DOLS Estimation for G7 Group

Furthermore, we estimate the effects of government effectiveness, regulatory quality, and the rule of law separately for G7 and ECOWAS countries to determine whether the contribution of legal and regulatory institutions to banking sector development varies across the two groups. This comparison is particularly relevant given the stronger institutional frameworks, enforcement mechanisms, judicial processes, and protection of legal rights generally associated with G7 economies relative to ECOWAS countries. The group specific estimations,

reported in Tables 7 and 8, therefore provide evidence of how differences in institutional quality influence banking sector development across the two groups.

Table 7: FM-OLS and DOLS Estimated Results for G7 Group

Var	FM-OLS					DOLS				
	1	2	3	4	5	1	2	3	4	5
BCPS (-1)	0.379* ** (0.000)	0.522* ** (0.000)	0.429* ** (0.000)	0.467* ** (0.000)	0.389* ** (0.000)	0.283* ** (0.000)	0.383* ** (0.000)	0.316* ** (0.000)	0.342* ** (0.000)	0.298* ** (0.000)
ROL	0.231* ** (0.006)			0.211* ** (0.000)	0.129* ** (0.005)	0.319* * (0.017)			0.233* ** (0.000)	0.135* ** (0.006)
REQ	0.394* ** (0.000)		0.479* ** (0.000)		0.455* ** (0.000)	0.418* ** (0.000)		0.497* ** (0.000)		0.505* ** (0.000)
GEF	0.280* * (0.021)		0.038 (0.323)	0.142* ** (0.000)		0.371* * (0.027)		0.084* * (0.036)	0.182* ** (0.000)	
PSA		0.404* ** (0.000)					0.504* ** (0.000)			
MEV		- 0.041* (0.118)					- 0.019* * (0.045)			
COC		0.069* ** (0.000)					0.055* ** (0.000)			
M2/GDP	0.082* ** (0.000)	0.061* * (0.023)	0.068* ** (0.007)	- 0.088* ** (0.001)	- 0.077* ** (0.001)	0.064* * (0.011)	0.154* ** (0.000)	0.056* * (0.030)	0.073* * (0.010)	0.064* * (0.010)
EXR	0.104* * (0.026)	-0.022 (0.671)	-0.079 (0.110)	- 0.128* * (0.014)	-0.091 (0.051)	0.081 (0.097)	-0.018 (0.743)	-0.058 (0.257)	-0.092 (0.110)	-0.080 (0.108)
ROL*PSA			0.096* ** (0.000)					0.005 (0.896)		
REQ*PSA				0.002 (0.971)					0.018* ** (0.002)	
GEF*PSA					0.018* ** (0.004)					0.091* ** (0.000)
ROL*MEV			- 0.091* ** (0.000)					- 0.480* ** (0.000)		
REQ*MEV				- 0.219* ** (0.000)					- 0.175* ** (0.000)	
GEF*MEV					- 0.381* ** (0.000)					- 0.013* ** (0.000)

ROL*C OC			0.063* ** (0.005)					0.051* * (0.029)		
REQ*C OC				0.065* * (0.015)					0.061* ** (0.030)	
GEF*C OC					0.413* ** (0.000)					0.083* ** (0.000)
Obs.	161	161	161	161	161	161	161	161	161	161
Normalit y	441.4 (0.000)	1675. (0.000)	485.5 (0.000)	1814. (0.000)	621.4 (0.000)	441.4 (0.000)	1675.4 (0.000)	485.5 (0.000)	1814. (0.000)	621.4 (0.000)
Serial Cor.	1.085 (0.361)	0.514 (0.607)	0.273 (0.763)	0.567 (0.578)	0.835 (0.451)	1.085 (0.361)	0.514 (0.607)	0.273 (0.763)	0.567 (0.578)	0.835 (0.451)
Ramsey	-0.266 (0.000)	-1.149 (0.000)	-0.391 (0.000)	-0.263 (0.000)	-0.261 (0.000)	-0.261 (0.000)	-1.149 (0.000)	-0.391 (0.000)	-0.263 (0.000)	-0.261 (0.000)
Het.	2.292 (0.583)	0.809 (0.576)	1.816 (0.155)	5.443 (0.466)	0.513 (0.789)	2.292 (0.583)	0.809 (0.576)	1.816 (0.155)	5.443 (0.466)	0.513 (0.789)
R- Squared	0.945	0.9218	0.941	0.927	0.945	0.946	0.927	0.932	0.658	0.944

Source: Authors' Concept. ***, ** and * represents the 1%, 5% and 10% significant levels. (.); represents the probability values.

The FM-OLS and DOLS estimates reported in Table 7, Column 1, indicate that the lagged value of bank credit to the private sector, BCPS(-1), has a positive and statistically significant effect on current banking sector development. This suggests that improvements in banking sector development tend to persist over time, with previous levels of private sector credit contributing to subsequent expansion, *ceteris paribus*. More importantly, the results show that the institutional environment plays a significant role in shaping banking sector development in G7 countries. Regulatory quality (REQ), rule of law (ROL), and government effectiveness (GEF) are positively and significantly associated with bank credit to the private sector, indicating that stronger legal and regulatory institutions create conditions conducive to greater financial intermediation.

The results for the moderating variables further show that political stability and absence of violence (PSA) and control of corruption (COC) exert positive and significant effects on bank credit, whereas macroeconomic volatility (MEV) constrains banking sector development. These findings are consistent with the broader panel estimates and suggest that institutional stability and effective governance complement formal legal and regulatory structures in promoting financial sector development. The positive interaction effects between ROL, REQ, GEF and the institutional moderators further indicate that improvements in governance can strengthen the contribution of legal and regulatory institutions to private sector credit. Conversely, the negative interaction effects involving MEV suggest that macroeconomic instability can weaken the effectiveness of these institutional arrangements. These findings are broadly consistent with North (1990), who argues that effective institutions and credible legal systems provide the foundations for economic and financial development. They also support the evidence reported by Manasseh et al. (2022) and Manasseh et al. (2023), which identifies institutional quality, particularly regulatory quality, rule of law, and government effectiveness, as important determinants of economic and financial development. In addition, financial depth, measured by M2/GDP, exhibits a positive and significant relationship with banking sector development, suggesting that a deeper financial system is associated with greater availability of credit to the private sector. The exchange rate also shows a positive and significant association under the FM-OLS specification, although its coefficient becomes negative and statistically insignificant in the DOLS estimation. Overall, the consistency between the FM-OLS and DOLS estimates strengthens the evidence that institutional quality, financial depth, and macroeconomic stability are important determinants of banking sector development in G7 economies.

4.3. Panel FM-OLS and DOLS Estimation for ECOWAS Group

The FM-OLS and DOLS estimates reported in Table 8 for the ECOWAS countries indicate that the lagged value of bank credit to the private sector, BCPS(-1), is positively and significantly associated with its current level. This finding suggests that banking sector development exhibits considerable persistence, such that previous improvements in private sector credit are likely to support subsequent credit expansion. The results further demonstrate that the three measures of legal and regulatory quality, namely rule of law (ROL), regulatory quality (REQ), and government effectiveness (GEF), have positive and statistically significant effects on bank credit to

the private sector. However, the magnitude of these effects is considerably smaller than those observed for the G7 countries. Specifically, improvements in ROL, REQ, and GEF are associated with increases of approximately 0.074, 0.011, and 0.033 in private sector credit in ECOWAS, compared with 0.231, 0.394, and 0.280, respectively, for the G7 economies. The DOLS estimates produce a broadly similar pattern, reinforcing the robustness of the findings. The comparatively weaker effects in ECOWAS suggest that improvements in formal legal and regulatory institutions may not translate into equivalent gains in banking sector development where institutional enforcement capacity remains limited. Differences in judicial effectiveness, regulatory implementation, and institutional accountability may partly explain this disparity.

The moderating variables also reveal important differences between the two groups. In ECOWAS, political stability and absence of violence (PSA) exert a positive and significant influence on bank credit, while corruption control (COC) and macroeconomic volatility (MEV) are negatively associated with private sector lending. Thus, although greater political stability appears to create a more favourable environment for banking activities, persistent corruption and macroeconomic instability constrain the ability of financial institutions to extend credit to the private sector. These conditions may reflect the region's exposure to inflationary pressures, exchange rate instability, weak economic performance, and institutional constraints, all of which can increase lending risks and reduce banks' willingness to provide long-term credit. The interaction estimates provide further evidence of the importance of the broader institutional environment. The interactions between ROL, REQ, and GEF and the moderating factors indicate that changes in political stability, corruption control, and macroeconomic conditions can alter the contribution of legal and regulatory institutions to banking sector development in ECOWAS. In particular, the negative interaction effects suggest that weaknesses in the surrounding institutional and macroeconomic environment can diminish the effectiveness of formal legal and regulatory arrangements in expanding private sector credit. Consequently, strengthening legal institutions alone may be insufficient to generate substantial improvements in banking sector development unless accompanied by effective corruption control, greater political stability, and improved macroeconomic management.

Collectively, the comparative evidence indicates that legal and regulatory institutions exert a stronger influence on banking sector development in the G7 than in ECOWAS countries. Although ROL, REQ, and GEF are positively associated with private sector credit in both groups, their substantially larger coefficients in the G7 suggest that institutional quality is more effectively translated into financial sector outcomes where legal rules are consistently enforced and regulatory institutions are more capable. This finding is consistent with North's (1990) institutional argument that effective legal structures provide the foundation for economic and financial development. The weaker institutional effects observed in ECOWAS may therefore reflect limitations in enforcement capacity, institutional effectiveness, corruption control, and the broader macroeconomic environment. The results consequently point to the importance of strengthening not only formal legal and regulatory frameworks but also the institutional capacity required to implement and enforce them effectively.

Table 8: FM-OLS and DOLS Estimated Results for ECOWAS Group

Variable s	FM-OLS					DOLS				
	1	2	3	4	5	1	2	3	4	5
CPS (-1)	- 0.643* ** (0.000)	- 0.326* ** (0.000)	0.631* ** (0.000)	- 0.350* ** (0.000)	0.647* ** (0.000)	- 0.471* ** (0.000)	- 0.499* ** (0.000)	0.463* ** (0.000)	- 0.520* ** (0.000)	0.476* ** (0.000)
ROL	0.074* * (0.036)			0.127* ** (0.004)	0.073* * (0.011)	0.143* ** (0.000)			0.072 (0.117)	0.138* ** (0.004)
REQ	0.011* ** (0.000)		0.196* ** (0.000)		0.205* ** (0.000)	0.083* ** (0.000)		0.243* ** (0.000)		0.274* ** (0.000)
GEF	0.033* * (0.022)		0.027 (0.085)	0.008 (0.605)		0.058* ** (0.000)		0.042* * (0.017)	0.027 (0.127)	
PSA		0.251* ** (0.000)					0.377* ** (0.000)			
MEV		- 0.002* * (0.017)					- 0.074* ** (0.000)			

COC		-0.012* ** (0.009)					-0.001* * (0.028)			
M2/GDP	0.004 (0.774)	0.218* ** (0.000)	0.117* * (0.000)	0.014 (0.313)	0.006 (0.538)	0.004 (0.979)	0.020 (0.214)	0.005 (0.714)	0.211* ** (0.000)	0.003 (0.829)
EXR	-0.0056 (0.188)	-0.012* ** (0.007)	-0.008* (0.066)	-0.009* * (0.026)	-0.006* * (0.012)	-0.007 (0.125)	-0.014* ** (0.003)	-0.010* * (0.035)	-0.011* * (0.019)	-0.008* * (0.031)
ROL*PS A			-0.059* * (0.011)					-0.117* ** (0.000)		
REQ*PS A				-0.141* ** (0.000)					-0.189* ** (0.000)	
GEF*PS A					-0.019* ** (0.004)					-0.035* ** (0.002)
ROL*M EV			0.035* * (0.015)					-0.065* ** (0.000)		
REQ*M EV				-0.005 *** (0.000)					-0.005* ** (0.000)	
GEF*M EV					-0.038* ** (0.000)					-0.013* ** (0.000)
ROL*C OC			-0.004* ** (0.000)					-0.007* (0.045)		
REQ*C OC				-0.003* * (0.029)					-0.006* ** (0.002)	
GEF*C OC					-0.002* ** (0.000)					-0.036* ** (0.000)
No. of Obs.	345	345	345	345	345	345	345	345	345	345
Normalit y	1589. (0.000)	1815. (0.000)	1543. (0.000)	1614. (0.000)	1624. (0.000)	1589. (0.000)	1815. (0.000)	1543. (0.000)	1614. (0.000)	1624. (0.000)
Serial Cor.	4.130 (0.516)	2.396 (0.784)	6.711 (0.124)	4.513 (0.611)	4.127 (0.716)	4.130 (0.516)	2.396 (0.784)	6.711 (0.121)	4.513 (0.611)	4.127 (0.716)
Ramsey	-0.059 (0.000)	-2.556 (0.002)	-0.247 (0.000)	0.035 (0.001)	-0.056 (0.030)	-0.059 (0.000)	-2.556 (0.002)	-0.247 (0.000)	0.035 (0.001)	-0.056 (0.030)
Het.	0.742 (0.615)	1.149 (0.333)	1.643 (0.134)	0.445 (0.847)	0.763 (0.598)	0.742 (0.615)	1.149 (0.333)	1.643 (0.134)	0.445 (0.847)	0.763 (0.598)

R-Squared	0.9182	0.565	0.920	0.573	0.917	0.926	0.816	0.928	0.417	0.925
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Source: Authors' Concept. ***, ** and * represents the 1%, 5% and 10% significant levels. (.) represents the probability values.

5. Discussion of Findings

This study examined the long-run relationship between legal and regulatory institutions and banking sector development across G7 and ECOWAS countries using annual data from 1999 to 2022. The analysis employed FM-OLS and DOLS estimators to assess the effects of rule of law (ROL), regulatory quality (REQ), and government effectiveness (GEF) on bank credit to the private sector (BCPS), while accounting for political stability and absence of violence (PSA), corruption control (COC), and macroeconomic volatility (MEV). The analysis was conducted for the pooled sample and separately for G7 and ECOWAS countries to determine whether institutional effects differ according to the level of economic and institutional development. The pooled results demonstrate that the rule of law is an important determinant of banking sector development. The positive and significant association between ROL and BCPS indicates that stronger legal institutions create a more predictable environment for financial intermediation. Effective enforcement of contracts, protection of property rights, and access to credible legal remedies can reduce uncertainty and transaction costs, thereby encouraging banks to extend credit to private sector borrowers. A credible rule of law may also strengthen confidence among depositors, investors, and financial institutions by reducing the risks associated with fraud, financial misconduct, and contractual breaches. This finding is consistent with the law and finance perspective of North (1990) and LLSV, which emphasises the importance of institutional arrangements in supporting financial market development.

Regulatory quality also exerts a positive and significant influence on banking sector development. This result suggests that the quality with which governments formulate and implement financial regulations matters for the expansion of private sector credit. Effective regulation can promote financial stability by limiting excessive risk-taking, strengthening supervisory standards, protecting consumers, and encouraging fair competition among financial institutions. Importantly, regulation should not merely increase administrative controls; rather, it should provide a predictable institutional framework that enables banks to manage risks while supporting innovation and efficient financial intermediation. The positive relationship between REQ and BCPS therefore suggests that improvements in regulatory institutions can contribute to a more functional and resilient banking sector across the sampled economies. The evidence further indicates that government effectiveness is positively associated with banking sector development, particularly in the DOLS estimates. Effective government institutions can improve the implementation of financial policies, strengthen regulatory enforcement, reduce administrative inefficiencies, and provide the institutional infrastructure required for financial sector development. Where public institutions are capable of implementing policies consistently and delivering public services effectively, financial institutions are likely to operate in a more predictable environment. Government effectiveness can therefore complement formal legal rules by ensuring that institutional arrangements are translated into actual regulatory and economic outcomes.

The findings concerning corruption control provide additional support for the institutional explanation of banking sector development. Although the effect is more evident under the DOLS specification, the positive relationship suggests that stronger control of corruption can improve confidence in financial institutions and reduce the risks associated with fraudulent and illicit activities. Effective corruption control may reduce opportunities for embezzlement, regulatory capture, money laundering, and other practices that undermine financial stability. A banking system perceived as transparent and accountable is more likely to attract deposits and investment and to strengthen confidence among domestic and international participants. In contrast, macroeconomic volatility does not exert a statistically significant direct effect on banking sector development in the pooled estimates. This does not imply that macroeconomic instability is irrelevant to banking sector performance. Persistent inflation, exchange rate instability, unemployment, and other forms of macroeconomic uncertainty can weaken borrowers' repayment capacity, increase credit risk, and contribute to the accumulation of non-performing loans. The absence of a significant direct coefficient may therefore indicate that the effect of macroeconomic volatility operates indirectly or is partly absorbed by institutional and financial conditions. This interpretation becomes more evident when the interaction effects are considered.

The results also show that political stability and absence of violence have a positive and significant relationship with banking sector development. A stable political environment reduces uncertainty and supports confidence in economic institutions, thereby creating more favourable conditions for financial intermediation. Political stability can also facilitate the consistent implementation of financial policies and support investment in financial infrastructure, payment systems, digital banking, and other technologies. Conversely, political instability and violence can disrupt economic activity, weaken investor confidence, damage financial infrastructure, and increase the risk associated with lending. The positive effect of PSA therefore highlights the importance of political and

institutional stability for sustained banking sector development. The interaction results provide a further contribution by demonstrating that the effects of legal and regulatory institutions depend partly on the broader institutional and macroeconomic environment in which they operate. The significant interaction terms involving ROL, REQ, GEF, PSA, COC, and MEV indicate that political stability, corruption control, and macroeconomic conditions can strengthen or weaken the contribution of legal and regulatory institutions to private sector credit. In particular, the positive interactions associated with political stability and corruption control suggest that effective legal and regulatory institutions are more likely to generate favourable banking outcomes when supported by stable political conditions and stronger institutional accountability. Conversely, the negative interactions involving macroeconomic volatility indicate that economic instability can undermine the effectiveness of otherwise functional legal and regulatory arrangements. Thus, banking sector development cannot be explained solely by the formal quality of laws and regulations; their effectiveness also depends on the wider institutional and economic environment.

The separate estimates for G7 and ECOWAS countries reveal an important institutional asymmetry. Although the general direction of the relationship between ROL, REQ, GEF, and BCPS is broadly consistent across the two groups, the magnitude of the effects is substantially greater in the G7 countries. This suggests that improvements in legal and regulatory quality translate more strongly into banking sector outcomes where institutions are supported by effective enforcement mechanisms, administrative capacity, and established regulatory systems. In ECOWAS, the positive relationship between institutional quality and private sector credit remains evident, but its relatively smaller magnitude suggests that weaknesses in institutional implementation may limit the extent to which improvements in formal governance structures translate into financial sector development. The differences between the two groups are also apparent in the effects of the moderating variables. In the G7 countries, political stability and corruption control support banking sector development, whereas macroeconomic volatility constrains private sector credit. This pattern reflects the importance of a stable and accountable institutional environment for financial intermediation. In ECOWAS countries, political stability remains supportive of banking sector development, but corruption control and macroeconomic volatility exert negative effects. The latter finding points to the greater vulnerability of banking systems in developing economies to institutional weaknesses and macroeconomic instability. Persistent corruption can increase information asymmetries and lending risks, while inflationary pressures, exchange rate depreciation, and broader economic uncertainty can weaken both the demand for and supply of bank credit.

The interaction results reinforce this distinction. The positive interaction effects observed in the G7 suggest that political stability and effective corruption control can enhance the contribution of legal and regulatory institutions to banking sector development. By contrast, the negative interaction effects observed in ECOWAS indicate that weaknesses in the surrounding institutional and macroeconomic environment can reduce the effectiveness of ROL, REQ, and GEF. The implication is that strengthening formal legal institutions in ECOWAS, although necessary, may not be sufficient. Institutional reforms must be accompanied by improvements in enforcement capacity, corruption control, political stability, and macroeconomic management. Finally, the findings provide three central insights. First, legal and regulatory quality is an important foundation for banking sector development across both G7 and ECOWAS countries. Second, the magnitude of this relationship varies considerably across the two groups, with stronger institutional effects in the G7. Third, the effectiveness of legal and regulatory institutions is conditional on the broader political, governance, and macroeconomic environment. These findings support the institutional perspective advanced by North (1990) and the law and finance literature, while extending the discussion by demonstrating that the institutional environment surrounding formal legal rules matters considerably for the development of private sector credit. From a policy perspective, the results suggest that ECOWAS countries should move beyond the formal adoption of legal and regulatory reforms towards strengthening the institutions responsible for implementing and enforcing them. Improving judicial effectiveness, regulatory capacity, corruption control, political stability, and macroeconomic management would increase the likelihood that institutional reforms translate into greater financial intermediation. For G7 economies, the findings instead highlight the importance of maintaining institutional quality while ensuring that regulatory systems remain sufficiently adaptable to emerging financial risks and technological changes. Across both groups, therefore, banking sector development requires an integrated institutional framework in which credible laws, effective regulation, capable government institutions, political stability, and sound macroeconomic management reinforce one another.

6. Conclusion and Policy Recommendations

The empirical evidence obtained from the panel FM-OLS and DOLS estimations demonstrates that the quality of legal and regulatory institutions is an important factor underlying banking sector development across both the G7 and ECOWAS countries. However, the magnitude of these effects is considerably stronger in the G7 than in ECOWAS. This difference points to the importance of institutional capacity, effective enforcement, and the

credibility of regulatory arrangements in determining the extent to which institutional reforms translate into financial sector development. The findings further show that political stability, control of corruption, and macroeconomic conditions have important implications for banking sector performance. Political stability and the absence of violence create a predictable environment in which financial institutions can mobilise deposits, extend credit, attract investment, and undertake long-term planning. This consideration is particularly important for ECOWAS, where political uncertainty and institutional weaknesses can constrain the ability of banks to perform their financial intermediation functions. Similarly, persistent macroeconomic instability can weaken banking sector development by increasing credit risk, reducing the value of bank assets, and undermining confidence in financial institutions. Strengthening macroeconomic management is therefore essential for sustaining banking sector expansion in both regions.

The findings also reveal a marked difference in the role of corruption control between the two groups. While stronger corruption control supports banking sector development in the G7, its relationship with banking sector development is negative in ECOWAS. This result may reflect the institutional difficulties associated with implementing anti-corruption measures in environments characterised by weak enforcement mechanisms, rent-seeking, and limited institutional capacity. More importantly, persistent corruption can weaken confidence in financial institutions, distort the allocation of credit, increase transaction costs, and discourage both domestic and foreign investment. These institutional weaknesses may partly explain the relatively weaker contribution of legal and regulatory reforms to banking sector development in ECOWAS. Several policy implications follow from these findings. First, ECOWAS countries should strengthen the rule of law by improving judicial independence, contract enforcement, property rights protection, and equal application of financial regulations. A predictable legal environment can reduce uncertainty and transaction costs while strengthening confidence among depositors, borrowers, investors, and financial institutions.

Second, governments should improve the quality, transparency, and consistency of financial regulation. Regulatory authorities need sufficient institutional autonomy and technical capacity to design and enforce rules that promote financial stability while allowing responsible innovation and private sector expansion. Regulatory reforms should also minimise unnecessary political interference in the supervision and operation of financial institutions. Third, greater attention should be given to strengthening political stability and reducing conflict and institutional uncertainty, particularly within ECOWAS. A secure political environment is essential for attracting investment, expanding financial infrastructure, and encouraging banks to increase lending to productive sectors of the economy. Fourth, ECOWAS governments should intensify efforts to combat corruption through transparent procurement systems, stronger accountability mechanisms, independent oversight institutions, and effective enforcement of anti-corruption legislation. Reducing opportunities for rent-seeking and abuse of public office would improve institutional credibility and strengthen confidence in the financial system. Finally, both G7 and ECOWAS countries should pursue credible monetary and fiscal policies capable of maintaining macroeconomic stability. Particular attention should be directed towards controlling inflation, managing public debt and fiscal deficits, stabilising interest rates, and reducing excessive exchange rate volatility. For ECOWAS in particular, greater macroeconomic stability would provide banks with a more predictable operating environment, improve their capacity to manage risk, and create more favourable conditions for sustained credit expansion and financial development..

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