

INSTITUTIONAL QUALITY, FINANCIAL INCLUSION AND PRIVATE SECTOR'S INVESTMENT IN ECOWAS: MEDIATING THE ROLES OF EXTERNAL ECONOMIC SPILLOVER

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Abstract

The objective of this study is to investigate the impact of institutional quality and financial inclusion on private sector investment in ECOWAS, spanning from 1995 to 2022. The study employed Pool Mean Group (PMG) as its technique for data analysis. Findings from PMG reveals that institutional quality positively influences private sector investment in the long run, while increased financial inclusion has a negative impact on private sector investment. Exchange rates do not significantly affect private sector investment over the long term, but interest rates are associated with a decrease in private sector investment, and inflation is positively related to private sector investment. The study concludes that there is a significant positive relationship between institutional quality and private sector investment, while financial inclusion shows a statistically significant negative impact in ECOWAS. Interest rates (INT) and inflation (INF) also impact private sector investment, albeit to a lesser extent. Recommendations include strengthening institutional frameworks, reassessing financial inclusion strategies and careful management of interest rates and inflation. While exchange rates have limited impact, regular evaluations are crucial. Vigilant tracking of short-term fluctuations, especially in variables like exchange rate, is essential for prompt policy adjustments. The study emphasizes coordination among monetary, fiscal and institutional policies for a synergistic approach fostering private sector investment in ECOWAS countries.

Keywords: Institutional Quality, Financial Inclusion, Private Sector Investment, PMG, ECOWAS

Introduction

The Economic Community of West African States (ECOWAS) stands at a critical juncture in its economic development path. As member countries strive for sustained socio-economic advancement, there is an increasing recognition of the interconnectivity between institutional quality, financial inclusion, and private sector investment. This nexus is not only pivotal for individual nations but also holds significant implications for the regional economic landscape (OECD, 2015). The role of private sector investment in sustainable economic growth cannot be over emphasized. It leads to inclusive growth by facilitating job creation and raising productivity in agriculture, where most of the population in low income regions like ECOWAS was employed. A vibrant private sector investment is necessary to engage the outputs of the agricultural sector and utilize them for the overall economic development of the region (Levine, 1991; Canton, 2021).

The quality of institutions play a foundational role in fostering an environment conducive for private sector growth (Knack & Keefer, 1995). The weakness of institutional quality is a critical

factor influencing private sector investment in the ECOWAS region (Siebert, 2006; Hounkpodote & Ouedraogo, 2020). More so, the promotion of financial inclusion has emerged as a key policy objective, aiming to bring a broader segment of the population into the formal financial system (World Bank, 2018). Also, the works of (Beck et al. 2007; Demirgüç-Kunt, et al, 2015; Asongu & Nwachukwu, 2017), emphasize the importance of financial inclusion in stimulating growth of private sector investment. Other economic variables such as the volatility of exchange rates, interest rates, and inflation rates further complicated the investment landscape (Edison, 1987; Fisher, 1993; Frankel & Rose 1996).

Although the ECOWAS region presents promising investment opportunities such as infrastructure projects, renewable energy ventures, and agribusiness, challenges however persist, including a poor investment environment marked by inadequate infrastructure and high business costs (Draper et al., 2011). The pathways to these potentials involve navigating regulatory frameworks, fostering regional partnerships, and leveraging local expertise for sustainable private sector investment growth. To guarantee this, it should involve a stable political and economic environment, transparent regulatory frameworks, robust legal protections, and effective dispute resolution mechanisms, ensuring investors' confidence and minimizing risks. To further address the challenges of how investment requires a synergy on the patterns of institutional quality and financial inclusion on shaping private sector investment. However there are other economic variables that can significantly influence investment decisions which should focus on the need for a holistic examination of the economic landscape to guide policy interventions that foster enabling environment for private sector investments' growth.

Identifying gaps in the existing literature (knowledge gap on generality), the study identified that past studies concentrated on singular aspects, such as the impact of institutional quality or financial inclusion on private sector investment (Chauvet & Jacolin, 2015; Barth, 2017; Eslamloueyan & Jafari, 2018; Lyulyov & Moskalenko, 2020). It also identified a geographical limitation in studies that predominantly focus on individual countries within the region (Kurul & Yalta, 2017; Jourdier & Viguier, 2020; Jurčić, et al. 2020; Yakubu, et al, 2021), potentially limiting generalizability. Moreover, the study highlights the narrow focus on corruption alone as an indicator of institutional quality, prompting the adoption of a broader index encompassing political stability, rule of law, accountability, and voice.

In ECOWAS region, addressing challenges related to institutional quality, financial inclusion, and private sector investment is crucial for fostering sustainable economic growth and development. Efforts have been made to overcome these issues, including the implementation of policy reforms aimed at improving institutional frameworks, enhancing regulatory environments, and promoting financial inclusion initiatives (Aideyan, 2016; World Bank, 2018). For instance, Nigeria has implemented the National Financial Inclusion Strategy to improve access to financial services for underserved populations (Central Bank of Nigeria, 2018). Additionally, regional integration efforts within ECOWAS have been pursued to facilitate cross-border trade and investment, thereby stimulating economic activity and private sector participation. However, despite these efforts, significant gaps remain, particularly in terms of the effectiveness of institutional mechanisms, the depth and breadth of financial inclusion, and the level of private sector investment. To necessitate the need for further study, it is imperative to consider indices that reflect the current situation on the ground. For instance, indices such as the World Bank's Ease of Doing Business Index can provide insights into the business environment and regulatory quality within ECOWAS member states. Similarly, the Global Financial Inclusion Index can offer perspectives on the extent of financial inclusion, while indicators like foreign direct investment (FDI) inflows and private sector

credit as a percentage of GDP can gauge the level of private sector investment. These indices would help to support the identified gaps and underscore the importance of investigating the mediating roles of external economic spillover in the context of institutional quality, financial inclusion, and private sector investment in the ECOWAS region.

The study aims to contribute valuable intuitions to academic research and policy formulation by examining the joint impact of institutional quality, financial inclusion, and external economic variables on private sector investment in ECOWAS region. The subsequent sections of this study will delve into a comprehensive review of relevant literature in section two, outline the employed methodology in section three, present and discuss the results in section four, and finally, section five concludes the study with recommendations for future research and policy actions.

Literature Review and Theoretical Framework

Two related theoretical frameworks form the foundation of this study. The Finance-Growth theory was chosen based on the assumption that the absence of access to finance is a critical factor responsible for persistent income inequality and sluggish growth, which ultimately result in low investment. Hence, access to a safe, easy and affordable source of finance is acknowledged as a precondition for accelerating investment growth. Secondly, the Keynesian theory that gives emphasis on the interest rate and investment and their interplay. The choice of the two overlapping theoretical frames in this study is aimed at providing more comprehensive understanding of how separate, yet related factors are interrelated in terms of their influence on the analysis of institutional quality, financial inclusion and private sector investment nexus.

Based on the above, a number of empirical studies (Fringpong & Marbuah, 2010; Chambers & Munemo, 2017) have been conducted so far regarding determinants of private sector investment. Institutional quality and financial inclusion are critical factors that can affect private sector investment. With better quality of institutions and financial inclusivity derive will boast liquidity thereby creating funds for investment. However, other factors such as the exchange rate, interest rate and inflation can also determine investment.

Chen & Jiang, (2021) examined the impact of institutional quality on private sector investment using panel data of 117 countries around the world from the period of 2001 to 2018. System GMM estimation technique was employed and the results indicated that institutional quality has significant and positive effect on private sector investment. Bouchouch & Benammou, (2020) examines the effect of institutional quality on the attractiveness of private sector investment through a sample of 41 African countries. The study employed both static panel data approach (fixed effect (FE) and random effect (RE) and the dynamic panel approach (system GMM). The results shows that the attractiveness of private sector investment to African countries is positively correlated with institutional quality. Yakubu, (2020) investigated the impact of institutional quality on private sector investment in Ghana for the period 1985-2016, using the autoregressive distributed lag (ARDL) approach. Result reveals evidence of positive significant effect of institutional quality on private sector investment The results also reveal a significant impact of inflation on private sector investment in both short and long run. Chen & Jiang (2021) and Bouchouch & Benammou (2020) consistent positive effects of institutional quality on private sector investment using different methodologies and broader samples, Yakubu (2020) focuses on Ghana specifically, employing the ARDL approach and highlighting the significance of inflation alongside institutional quality in influencing private sector investment dynamics over a longer time span.

Lyulyov & Moskalenko (2020), investigated the impact of institutional quality and shadow economy, emphasizing the investment potential evaluation model to integrate the institutional quality index concludes that institutional quality creates the environment for economic activity in a country. Iheonu, et al. (2020), investigated financial sector development's impact on domestic investment in ECOWAS between 1985 and 2017. It employed the Augmented Mean Group (AMG) estimation technique. Results indicated that cross-country differences exist and concluded that financial sector development has an impact on domestic investment.

Peres, et al. (2018) examined the impact of institutional quality on investment and employed OLS estimation technique. The result reveals that institutional quality positively and significantly impacts investment in developed and developing countries. The literature collectively highlights the importance of institutional quality in influencing entrepreneurial activity and private sector investment. Different studies offer a variety of perspectives, enriching the overall understanding of determinants of investment. Generalization may be constrained due to variations in methodologies, sample sizes, and regional contexts. Some studies focused on specific factors, potentially overlooking the complex interplay of multiple variables influencing investment decisions. Eslamloueyan & Jafari (2018) investigated the effect of institutional quality on investment dynamics in 8 Eastern Asian countries employed GMM and the study revealed that institutions are the main determinant of investment, thereby concluded that there is a significant effect of institutional quality on capital formation. While the study emphasizes institutional quality, a comparative analysis across diverse regions could provide a more comprehensive understanding. A similar study by

Chambers & Munemo (2017) examined the effects of the regulatory environment and the quality of institution on entrepreneurship. Results indicated that institutional quality is statistically significant and have positive impact on entrepreneurial activity. The study's focus on entrepreneurship provides specific insights, but a broader examination of investment dynamics could enhance its applicability. Similarly, studies of Kyei & Chan (2016) investigated the critical factors that attract private investments in the Public Private Partnership (PPP) markets of developing countries, result shows that institutional quality is a critical factor in sustaining private sector investment.

Sharma, et al. (2023) examines the cause-and-effect relationship between entrepreneurship ecosystem and financial inclusion across countries. The regression coefficients of selected independent variables are estimated through robust empirical models. Results show that entrepreneurship ecosystem and financial inclusion are complementary to each other. Nabieu, et al. (2023) examines the effects and mediating role of financial inclusion, investment, and economic growth interrelationships in 41 African countries from 2009-2019. The Preacher and Hayes bootstrapping approach employed to analyze the mediating effects shows that investments fully mediate the financial inclusion-economic growth nexus in Africa. The study further found strong evidence that financial inclusion and private investments adversely affect economic growth. Chen, et al. (2023), Investigates the dynamic common correlated effects of financial inclusion on private investments in East Asia and Pacific (EAP) countries, using a unique method called DCCE, Result reveals that financial inclusion positively and significantly influences private sector investments in higher-income and overall EAP countries.

Sharma et al. (2023) and Chen et al. (2023) both explore the relationship between financial inclusion and private sector investments across different regions, with Sharma focusing on a global perspective and Chen on East Asia and Pacific countries. Nabieu et al. (2023) focussed on African context, examining the mediating role of investments on the financial inclusion-economic

growth nexus. Sharma and Chen on the other hand found positive associations between financial inclusion and private investments. Nabieu's study advocates a more subtle relationship in Africa, where financial inclusion and private investments may have adverse effects on economic growth.

Nugraha, et al. (2021), in a cross-sectional data study in Monado, they examined the impact of financial literacy and financial inclusion on investment decisions. The time series study deployed multiple linear regressions as its data analysis technique. The findings of the study concluded that financial literacy and financial inclusion singly or simultaneously have positive and significant effect on investment decision. However, the study provides perceptions into individual-level factors, but further exploration of broader economic indicators might offer a more holistic perspective. However, Ayoola & Omowunmi (2018) employed the ARDL technique to examine the relationship between financial inclusion and investment in Nigeria and the results indicated that not all three criteria for financial inclusion (availability, accessibility and affordability) guarantee investment. The study concludes that there is a long-run relationship among the variables.

On the same vein, Barth, (2017) examined the role of financial inclusion in leveraging investments from remittances employing system GMM on a panel data set of 54 countries spanning from 2004 to 2015. The result indicated evidence for a complementary relationship showing that an increase in the number of deposit accounts has significant potential to leverage investments and higher financial development across both dimensions encourages investments. The study thus concluded that financial inclusion promotes higher investment ratios associated to remittances. The study offers valuable understandings into remittances, but considering a broader range of financial instruments could enhance the applicability of the findings. Chauvet & Jacolin (2015) studied the impact of financial inclusion and financial development on the performance of firms, it employed OLS and fixed effect on a Panel set of 26 developing countries. The result revealed that financial inclusion has positive impact on the growth of firms. While the study focuses on firms, exploring the broader economy's impact could provide a more comprehensive perspective.

Ayeni (2020) identified what determines sustainable private sector investment and result indicated that exchange rate and volume of credit to private sector were the two factors that hinder private sector investment. While the study highlights hindrances, a broader examination of sustainable investment factors could enhance its applicability to various economic contexts. (Olweny & Chiluwe, 2012) on the impact of monetary policy on private sector investment, it concluded that exchange rate had significant impact on private sector investment. The study contributes to the role of monetary policy, but the impact of other monetary variables could be explored for a comprehensive view. In another study conducted, Fringpong & Marbuah (2010), examined the determinants of private investment and found that inflation, real interest rate, exchange rate and a regime of constitutional rule are factors that affects private sector investment in both short and long run. The study provides valuable insights into the short and long-term effects of macroeconomic variables, but potential limitations may include the need for updated data and the generalization of findings to other contexts.

Methodology

This aspect of the research discusses the research method in general. It includes the model specification, sources of data and estimating techniques among others.

Model Specification

For the estimation technique, the study utilizes panel data regression spanning from 1995 to 2022 to examine the impact of institutional quality and financial inclusion on private sector investment with mediating effect of external economic spillover, employing the Poled Mean Group (PMG)

estimator proposed by Pesaran et al. (1998) and Pesaran and Shin (2001). Standard models, based on prior research (Zulkhibri & Ghazal, 2017; Lyulyov & Moskalenko, 2020; Raji, 2021; Mehmood, et al. 2021), serve as a foundation, with necessary modifications to address the study objectives and align with the theoretical framework. The functional relationship between independent and dependent variables is expressed as follows:

$$PIN=f(INQ, FIN, X).....(1)$$

Where, PIN is private sector investment, INQ is institutional quality, FIN is financial inclusion and X represents other external or control variables in the model. These control variables according to literature could impact on private sector investment such as exchange rate, interest rate and inflation, which perform a unique role in influencing investment environment. This is grounded in their acknowledged significance in shaping economic dynamics, particularly within the context of private sector investment (Fringpong & Marbuah, 2010).

For the objective of the study, a model that follows equation (1) is formulated. In addition, the model is modified to include the control variables and specified as ;

$$PIN_{it} = \beta_0 + \beta_1 INQ_{it} + \beta_2 FIN_{it} + \beta_3 EXR_{it} + \beta_4 INT_{it} + \beta_5 INF_{it} + \mu_{it}..... (2)$$

The econometric model estimated specified in equation (2), is in consistence with (Borojo & Yushi, 2020), where: β_1 to β_5 are the elasticity estimated.(parameters), PIN represents private sector investment and the dependent variable, INQ denotes institutional quality index, FIN refers to financial inclusion index, EXR as exchange rate, INT as interest rate, INF as inflation and μ is the error term which is expected to tend towards zero, while i stands for cross sectional element ($i=1, 2, 3,...16$); t stands for time period (that is $t= 1995, 1996,.....2022$).

The PMG long run equation for the model (equation 2) can be specified below,

$$\Delta PIN_{i,t} = \varphi_0 + \sum_{i=1}^n \varphi_1 \Delta PIN_{i,t-j} + \sum_{i=1}^n \varphi_2 \Delta INQ_{1i,t-j} + \sum_{i=1}^n \varphi_3 \Delta FIN_{2i,t-j} + \sum_{i=1}^n \varphi_4 \Delta EXT_{3i,t-j} + \sum_{i=1}^n \varphi_5 \Delta INT_{4i,t-j} + \sum_{i=1}^n \varphi_6 \Delta INF_{5i,t-j} + \beta_0 PIN_{i,t-1} + \beta_1 INQ_{1i,t-1} + \beta_2 FIN_{2i,t-1} + \beta_3 EXT_{3i,t-1} + \beta_4 INT_{4i,t-1} + \beta_5 INF_{5i,t-1} + \epsilon_{i,t}.....(3)$$

In equation (3), Δ is the first difference operator and φ is a drift component. Equation (3) is a representation of an unrestricted error correction model where the summation sign, Σ , expresses the error correction dynamics and the expressions β_0 to β_5 denotes the long run relationship.

The PMG short run equation for the model (equation 2) can be specified as;

$$\Delta PIN_{i,t} = \varphi_0 + \sum_{i=1}^n \varphi_1 \Delta INQ_{i,t-j} + \sum_{i=1}^n \varphi_2 \Delta FIN_{1i,t-j} + \sum_{i=1}^n \varphi_3 \Delta EXT_{2i,t-j} + \sum_{i=1}^n \varphi_4 \Delta INT_{3i,t-j} + \sum_{i=1}^n \varphi_5 \Delta INF_{4i,t-j} + \varphi_{10} ect_{t-1} + \epsilon_t..... (4)$$

Where ect is the error correction term which validates the existence of a long run relationship among the variables in the model when its coefficient is negative, less than one and significant statistically.

Source of Data

Data were collected from the World Bank Development Indicators (WDI) 2023 database and includes the variables - private sector investment, institutional quality, financial inclusion, exchange rate, interest rate and inflation as shown in Table 1. These variables were used in previous empirical literature (Olweny & Chiluwe, 2012; Peres, et al. 2018; Ayeni, 2020;). The

choice of these countries are informed by the poor state of private sector investment in the region (Draper et al., 2011), despite these countries enormous natural and human resources which can have a significant impact on their private sector investment.

Table 1: Variable Codes and Data Sources

Variable Codes	Variable Name	Description and of the Variable	Source
PIN	Private Sector Investment	Gross capital formation (i.e Gross domestic investment) is the total change in the value of fixed assets plus change in stocks	WDI/World Bank 2023
INQ	Institutional Quality	The composite index of four out of the six government indicators (political stability, accountability and voice, control of corruption, and rule of law) constructed by average method, Consistence with (Kraay & Mastruzzi, 2011). .	WDI/World Bank 2023
FIN	Financial Inclusion	The composite index of the four indicators (accessibility, availability, affordability, and credit volume) by average method is in line with the works of (Demirgüç-Kunt, et al. 2018).	WDI/World Bank 2023
EXT	Exchange Rate	Real effective exchange rate refers to the relative price of foreign goods in terms of domestic goods.	WDI/World Bank 2023
INT	Interest Rate	Interest rate spread (lending rate minus deposit rate, %)	WDI/World Bank 2023
INF	Inflation	Inflation (INF) as measured by the consumer price index, it shows the annual percentage change in the cost to the average consumer of acquiring a basket of goods and services that may be fixed or changed at specified intervals	WDI/World Bank 2023

Source: Author's compilation 2024

Estimation Technique

To examine the impact of institutional quality and financial inclusion on private sector investment with mediating effect of external economic spillover, the econometric analysis includes: the Descriptive Analysis of the data, Correlation Matrix, Cross-Sectional Dependency Test, Panel Unit Root Test, Panel Co-integration Test and Pooled Mean Group test (PMG).

Cross-sectional dependency test is essential in panel data analysis. This is to assess whether observations across different cross-sectional units are independent. Justification for cross-sectional dependency test is to ensure the validity and reliability of panel data analysis. Addressing cross-sectional dependencies appropriately improves model accuracy, enhances statistical inference, and contributes to more meaningful and policy-relevant research outcomes. A panel unit root test is essential in panel data analysis to assess the stationarity of variables over time and across cross-sectional units. Non-stationary variables can lead to inefficient estimators, making it crucial to determine whether variables exhibit unit roots. The panel unit root test, such

as the Pesaran and Shin (2003) test (IPS), helps ensure the reliability of results and enhances the validity of the analysis by addressing potential issues related to nonstationarity in the data (Iheonu et al., 2020). Cointegration tests assess whether variables share a common long-run relationship. In a panel setting, understanding these long-term dynamics is vital for capturing persistent patterns and relationships among variables across different cross-sectional units.

The Pooled Mean Group (PMG) estimator for panel data was proposed by Pesaran, Shin, and Smith in their influential paper titled "Pooled Mean Group Estimation of Dynamic Heterogeneous Panels" published in 1999. The authors were M. Hashem Pesaran, Yongcheol Shin, and Richard J. Smith. The estimator is designed to handle situations where there is both heterogeneity across groups and dynamic relationships within each group. It allows for individual-specific coefficients while benefiting from pooling information across groups to improve efficiency. The primary objective is to estimate the long-run coefficients in a dynamic panel data model, where the dynamics are captured by lagged values of the dependent variable and possibly lagged values of other variables. The PMG estimation technique combines both fixed effects and common mean group effects in panel data analysis to address cross-sectional heterogeneity and enhance the efficiency of parameter estimation. Justifiably, the PMG test is employed because it has the capacity to address variations in long-term relationships among panel units, allowing for a comprehensive analysis of both individual and collective dynamics across the panel, making it an appropriate choice for evaluating the impact of institutional quality on private sector investment in the ECOWAS region.

Results and Discussion

Descriptive Statistics

Table 2 shows the data characteristics, and it summarizes the data for the selected variables. This descriptive statistics show the analytical test of the variables included in the model. They are private sector investment (PIN), institutional quality (INQ), financial inclusion (FIN), exchange rate (EXR), interest rate (INT) and inflation (INF).

Table 2: Result of the Summary Statistics of the Variables

	LPI	INQ	FIN	EXT	INT	INF
Mean	6.916752	-2.396202	111.1362	602.4339	16.35106	8.825094
Median	8.977969	-2.287384	23.49740	478.6337	16.23218	4.621392
Maximum	12.90648	1.380464	1492.401	9565.082	71.36917	72.83550
Minimum	-0.412043	-7.302568	0.000000	0.119914	-32.26333	-3.502586
Std. Dev.	4.893090	1.735702	195.7318	1337.873	12.61443	12.32901
Skewness	-0.293676	-0.320063	3.697945	4.822439	0.715466	2.412270
Kurtosis	1.371222	2.404844	20.28022	27.25108	6.210990	9.091659
Jarque-Bera	55.96078	14.26079	6595.031	12714.59	230.6831	1127.177
Probability	0.000000	0.000800	0.000000	0.000000	0.000000	0.000000
Observations	448	448	448	448	448	448

Source: Researcher computation using Eviews 11. 2024

The mean values provide insights into the average levels of these variables, with PIN at 6.92, INQ at -2.40, FIN at 111.14, EXR at 602.43, INT at 16.35, and INF at 8.83. Medians reveal the central tendency, while maximum and minimum values demonstrate the range. Standard deviations

highlight the variability, and skewness and kurtosis shed light on the distribution shapes. Additionally, the Jarque-Bera test indicates departures from normality, with associated probabilities close to zero, suggesting non-normal distributions. These statistics offer a comprehensive overview of the characteristics of the analyzed economic indicators.

Correlation Analysis

In Table 3, the correlation matrix is utilized to examine the correlation among the variables in the model

Table 3: Correlation Matrix Result

	LPI	INQ	FIN	EXR	INT	INF
LPI	1.0000					
INQ	0.0165	1.0000				
FIN	-0.1362	-0.0239	1.0000			
EXR	0.1823	0.0845	-0.0372	1.0000		
INT	0.0904	0.0636	-0.0977	0.1083	1.0000	
INF	0.1369	-0.0756	-0.0704	0.0582	0.2544	1.0000

Source: Author's computation using Eviews version 11 (2023)

The result shows that financial inclusion is negatively correlated with private investment, institutional quality, exchange rate, interest rate and inflation rate with correlated coefficients of -0.1362, -0.0239, -0.0372, -0.0977 and 0.0704, respectively. On the other hand, the coefficient of institutional quality is positively related to private investment, exchange rate and interest rate with correlated coefficients of 0.0165, 0.0845 and 0.0636 except the coefficient of inflation rate which is negatively correlated with coefficients value of -0.0756. This implies that there is no presence of multicollinearity among the variables since none has coefficient of 1.000, which is perfect multicollinearity. It reveals that concentrating on financial inclusion and institutional quality to drive private investment is crucial in ECOWAS countries since their coefficients are strongly correlated. Thus, according to the result of correlation coefficients of the models, there is no presence of multicollinearity between the variables under investigation and hence the variables are well fitted to be included in the models for analysis.

Cross Sectional Dependence Test

Table 4 reports the results of cross-sectional dependence (CSD) tests, employing three different tests: Pesaran CSD Test, Friedman CSD Test, and Frees CSD Test.

Table 4: Cross Sectional Dependence Test Result

Test	Statistics	P- values
Pesaran CSD Test	3.512***	0.0004
Friedman CSD Test	23.275*	0.0785
Frees CSD Test	4.154	0.1046

Source: Author's computation using Eviews version 11 (2023)

Looking at the cross-sectional dependence test, the parametric testing procedure proposed by Pesaran (2004) CSD as well as Friedman (1937), 2004) Tests provides clear evidence of cross-sectional dependence in the data. Results indicated that the null hypothesis of no-cross sectional dependence test, is rejected at 1%, and 10% significance levels

Panel Unit Root Test

The database spans from 1995 to 2022 and includes 16 ECOWAS countries.

Table 5: Panel Unit Root Test byResult

Pesaran's CADF Test				
	Level Value		First Difference	
	t-bar	Z(t-bar)	t-bar	Z(t-bar)
PIN			-3.265***	-6.246***
INQ			-3.495***	-7.196***
FIN	-2.944***	-4.922***		
EXR	-2.466***	-2.953***		
INT	-2.3302***	-2.392***		
INF	-2.883***	-4.672 ***		

Source: Author's computation using EViews version 11 (2024)

Note: Statistics is t-bar statistic. No lags included. Note: ***, ** and * represent statistical significance at 1%, 5% and 10%, respectively.

Because of this coverage, it is expected that some explanatory variables follow a unit root process (Nelson and Plosser, 1982; Samargandi et al., 2015). To this end, the study applied second-generation unit root test by Pesaran (2003) after testing for the cross-section dependence hypothesis by Pesaran (2004) and Friedman (1937), results confirmed evidence of cross sectional dependence. Table 5 presents the results of Pesaran's (2003) Cross-Sectional Augmented Dickey-Fuller (CADF) unit root test for panel data with the focus on the order of integration for various variables. The test was applied to both the level values and the first differences of the variables.

Table 5 presented Pesaran's CADP test where private sector investment and institutional quality seem to be integrated of order I (1) across all the cross-sectional units and statistically significant at 1% level. This indicates that after differencing, PIN and INQ becomes stationary at (I(1)), suggesting that their first difference is needed to achieve stationarity. This implies that the null hypothesis of the panel unit-root for the variables is rejected at 1% level of significance. Similarly, the tests also revealed that financial inclusion, exchange rate, interest rate and inflation are stationary at level values (I(0)), leading to rejection of null hypothesis of panel unit-root at 1% level of significance. Thus, that the variables exhibit stationarity characteristics without the need for further differencing in some cases (I(0)), while others require first differencing to achieve stationarity (I(1)).

Panel Cointegration Tests

It is important to test for panel cointegration among the variables under investigation in order to determine the existence of cointegration or otherwise. The study employed Pedroni (2003) and Kao (1999) Residual Cointegration Tests and the indicated result is presented in table 6.

Table 6: Cointegration Tests Result

Pedroni Residual Cointegration Test-		
Test	Statistic	P – Value
Within-Dimension		
Panel v-Statistic	-0.382374	0.6489
Panel rho-Statistic	-0.705591	0.2402
Panel PP-Statistic	-7.390391	0.0000
Panel ADF-Statistic	-3.264494	0.0005
Between-Dimension		
Group rho-Statistic	1.384069	0.9168
Group PP-Statistic	-4.596315	0.0000
Group ADF-Statistic	-2.284390	0.0112
Kao Residual Cointegration Test		
ADF	2.963317	0.0015

Source: Author's computation using EViews version 11 (2023)

Table 6 indicated that there is evidence of cointegration among the variables under study as the coefficients of t-statistics in both within-dimension and between-dimension are statistically significant at 1% and 5% levels. Thus, the null hypothesis of no cointegration among the variables is rejected and it is concluded that there is presence of cointegration among the variables. Despite the fact that the t-statistic of Panel v-Statistic, Panel rho-Statistic and Group rho-Statistic are not statistically significant at 10% level but majority of the test reveal otherwise. According to Pedroni (2004), the panel ADF and group ADF tests have superior small samples qualities then other tests and thus provide statistically significant test findings at the 1%, 5% and 10% levels. Based on the test results, this study infers that there is evidence of cointegration among the variables.

The Kao residual cointegration Test is used to determine whether there is a long-term relationship, or cointegration, between two or more variables. The Kao residual cointegration Test was conducted, the result have provided the test statistic and p-value for the Augmented Dickey-Fuller (ADF). It is a measure of the presence of unit roots in the time series data and it is used as part of the Kao residual cointegration Test. In the context of cointegration testing, a smaller ADF test statistic is desirable because it indicated stronger evidence of cointegration. The p-value associated with the ADF test statistic is 0.0015, with significance level of 0.05, a p-value less than 0.05 indicates statistical significance. In this case, the p-value is less than 0.05, supporting the conclusion that there is evidence of cointegration.

Panel Data Estimation

Table 7 is the results of Pooled Mean Group (PMG), a panel regression analysis, with both long and short-run equations. In this analysis, the dependent variable is PIN, stands for private sector investment, while independent variables are INQ (institutional quality), FIN (financial inclusion), EXR (exchange rate), INT (interest rate), and INF (inflation).

Table 7:Pooled Mean Group (PMG) Result

Variable	Coefficient	Std. Error	t-Stats	Prob.*
Long Run Equation				
INQ	0.076614	0.013769	5.564100	0.0000
FIN	-0.001184	0.000199	-5.937812	0.0000
EXR	-1.96E-05	5.58E-05	-0.351378	0.7256
INT	-0.012145	0.001335	-9.097299	0.0000
INF	0.033431	0.014188	2.356319	0.0192
Short Run Equation				
COINTEQ01	-0.443631	0.122453	-3.622881	0.0003
D(INQ)	-0.057567	0.043450	-1.324918	0.1863
D(FIN)	0.000144	0.001328	0.108350	0.9138
D(EXR)	-0.014181	0.007630	-1.858478	0.0642
D(INT)	0.009812	0.007513	1.305994	0.1926
D(LINF)	-0.027541	0.047827	-0.575860	0.5652
C	2.056561	0.435256	4.724951	0.0000
@TREND	0.012270	0.009458	1.297281	0.1956

Source: Author's computation using EViews version 11 (2023)

The result indicated that the coefficient for INQ is 0.076614 and is statistically significant with a p-value of 0.0000, which is less than 0.05, this indicates a strong statistical relationship between institutional quality (INQ) and private sector investment (PIN). This suggests that a 1-unit increase in institutional quality is associated with an approximate 0.0766 unit increase in private sector investment, holding other factors constant (in ECOWAS). in the long run. The coefficient for FIN is also statistically significant with a p-value of 0.0000, indicating a significant relationship between financial inclusion (FIN) and private sector investment (PIN). This implies that a 1-unit increase in financial inclusion is associated with a decrease of approximately 0.0012 units in private sector investment in the long run.

The coefficient for EXR of -1.96E-05 is not statistically significant with a p-value of 0.7256, meaning that the exchange rate (EXR) does not have a statistically significant effect on private sector investment (PIN) in the long run. The coefficient for INT is -0.012145 and a p-value of 0.0000 . This suggests that a 1-unit increase in interest rates is associated with a decrease of approximately 0.0121 units in private sector investment in the long run, while holding other variables constant. There is a highly significant negative relationship between interest rates (INT) and private sector

investment, meaning as interest rates increases, private sector investment tends to decrease. The coefficient for INF is 0.033431 while the p-value is 0.0192. The coefficient for INF is statistically significant with a p-value of 0.0192, indicating that inflation (INF) has a statistically significant effect on private sector investment (PIN) in the long run, although the significance level is slightly higher than 0.05.

However, there is a highly significant negative relationship between the short-term error correction term (ect) and private sector investment. This is shown in the value of coefficient at -0.4436 and a p-value of 0.0003. This term captures the speed of adjustment in the short run, suggesting that deviations from the long-run equilibrium are corrected at a significant rate. The coefficient for D(FIN) which is 0.0001, is not statistically significant with a high p-value of 0.9138, indicating that changes in financial inclusion (D(FIN)) are not statistically significant in influencing short-term private sector investment. The coefficient for D(EXR) is not statistically significant at the 0.05 significance level, with a p-value of 0.0642, suggesting a borderline effect on private sector investment in the short run. This implies that changes in the exchange rate (D(EXR)) have a marginally significant negative impact on short-term private sector investment given the a coefficient of 0.0001 and a p-value of 0.9138. Changes in interest rates (D(INT)) has a coefficient of 0.0098 with a p-value of 0.1926, which indicates that changes in interest rates do not have a statistically significant short-run impact on private sector investment. The changes in inflation (D(LINF)) suggested no statistically significant in influencing short-term private sector investment, as shown in the coefficient of -0.0275 with a p-value of 0.56527.

The coefficient of the intercept (C) is 2.0566, representing the short-run effect when all other independent variables are zero, while the p-value is 0.0000 indicating highly significant. On the other hand, the trend variable is not statistically significant at the 0.05 significance level, with a p-value of 0.1956, indicating that it does not have a statistically significant short-run impact on private sector investment. It is seen clearly in the result in Table 7, that the statistical significance of the coefficients in the long run and short run equations varies, with some variables being statistically significant and others not. This information is essential for assessing the reliability of the estimated relationships between the independent variables and the dependent variable. The long-run equation indicates the relationship between the variables in the long term, while the short-run equation focuses on short-term dynamics. The findings suggest the importance of considering both long-run and short-run dynamics when assessing the impact of various factors on private sector investment.

Discussion of Results

The Pooled Mean Group (PMG) panel regression analysis examines the impact of institutional quality (INQ) and financial inclusion (FIN), on private sector investment in ECOWAS while mediating the role of external economic spill over. The results reveal a statistically significant positive relationship between institutional quality and private sector investment in the long run. This finding aligns with several studies (Chambers & Munemo, 2017; Eslamloueyan & Jafari, 2018; Lyulyov & Moskalenko, 2020) emphasizing the pivotal role of institutional quality in influencing entrepreneurial activity and investment dynamics. Conversely, the results also indicated a statistically significant negative relationship between financial inclusion and private sector investment in the long run. This finding contradicts studies by (Barth, 2017; Chauvet & Jacolin, 2015), which highlight the positive impact of financial inclusion on private sector investment.

Furthermore, the results suggest that the exchange rate does not exert a statistically significant effect on private sector investment in the long run. This finding deviates from findings by (Fringpong & Marbuah, 2010; Ayeni, 2020), where the exchange rate is identified as a determinant

of private sector investment. There exists a statistically significant negative relationship between interest rates and private sector investment in the long run, aligning with the findings of (Fringpong & Marbuah, 2010), indicating that as interest rates increase, private sector investment tends to decrease. On the other hand, the results reveals a statistically significant positive relationship between inflation and private sector investment in the long run, notwithstanding the significance level is slightly higher than 0.05. This contrasts with (Fringpong & Marbuah, 2010; Ayeni,2020), where inflation is identified as having a negative impact on private sector investment.

Regarding short-term dynamics, the short-term error correction term (ect) is highly significant, indicating a swift adjustment to deviations from the long-run equilibrium. Changes in financial inclusion (D(FIN)) are not statistically significant in influencing short-term private sector investment, consistent with (Ayoola & Omowunmi,2018). The intercept (C) is statistically significant, representing the short-run effect when all other independent variables are zero, while the trend variable is not statistically significant, suggesting it does not have a short-run impact on private sector investment.

The literature reviewed highlights the significance of institutional quality, financial inclusion, exchange rates, interest rates, and inflation in influencing private sector investment, providing a foundation for the empirical findings. Despite some discrepancies, such as the negative relationship between financial inclusion and investment in the results, contrary to (Barth,2017; Chauvet & Jacolin,2015), the findings highlighted the complexity of these relationships and emphasize the importance of considering both long-run and short-run dynamics. The results of the study contribute to the existing literature by furnishing empirical evidence on the relationships between various factors and private sector investment. The discrepancies with certain studies underscore the importance of context-specific analysis and the necessity for further research to comprehensively explore these dynamics.

Conclusion

Based on the findings of the study, conclusions can be drawn. There is a strong and statistically significant positive relationship between institutional quality (INQ) and private sector investment (PIN) in the long run. Financial inclusion (FIN) exhibits a significant negative relationship with private sector investment in the long run. On the other hand exchange rate (EXR) does not show a statistically significant impact on private sector investment in the long run. In contrast, interest rates (INT) have a highly significant negative relationship with private sector investment. It also shows that Inflation (INF) has a statistically significant positive relationship with private sector investment in the long run in ECOWAS countries.

The study's recommendations underscore the importance of a comprehensive approach to fostering private sector investment:

- i. There is a need to strengthen institutional frameworks by reducing bureaucratic hurdles, enhancing transparency and promoting good governance.
- ii. Concurrently, a reassessment of financial inclusion strategies is advised to mitigate the negative long-term impact on private sector investment.
- iii. The careful monitoring and management of interest rate policies are recommended, considering their negative relationship with investment.
- iv. Controlling inflation within reasonable limits through a combination of monetary and fiscal measures is proposed, given its positive relationship with private sector investment.

- v. While exchange rates may not significantly affect investment, periodic evaluation of exchange rate policies aligned with economic goals is recommended.
- vi. Additionally, short-term fluctuations, especially those with marginal significance like changes in exchange rates, should be closely monitored with prompt policy adjustments. Further research is encouraged for a deeper understanding of identified relationships, considering specific variables and exploring the impact of policy interventions.
- vii. Lastly, coordination among monetary, fiscal, and institutional policies is emphasized to ensure entrenchment of a synergistic approach that promotes private sector investment and overall economic growth.

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