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Financial Deepening and Entrepreneurial Development in Nigeria: Evidence from 1981–2024

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Abstract:

This study investigates the relationship between financial deepening and entrepreneurial development in Nigeria using annual data from 1981–2024. Non-oil GDP is used as a proxy for entrepreneurial development, while financial deepening is captured through money supply, credit to the private sector, lending rate, and exchange rate. The analysis employs various statistical test such as the Johansen cointegration test, Vector Error Correction Model (VECM), Granger causality to examine both short- and long-run dynamics. The results reveal a stable long-run relationship among the variables. Money supply and exchange rate positively influence entrepreneurial development, while credit to the private sector shows a negative long-run effect, indicating inefficiencies in credit allocation. Lending rates appear largely insignificant. Granger causality results show that non-oil GDP drives changes in money supply, private sector credit, and exchange rate, suggesting that entrepreneurial growth plays a significant role in shaping financial sector dynamics. The study concludes that entrepreneurial development is a central driver of Nigeria's financial and monetary dynamics and recommended that financial institutions should make it easier for small and medium-sized enterprises (SMEs) and entrepreneurs to access credit. Also, government policies should focus on supporting businesses in areas such as agriculture, manufacturing, and services.

Keywords: Financial Deepening, Entrepreneurial Development, Non-Oil GDP, Credit to Private Sector

1. Introduction

Entrepreneurship has increasingly been recognized as a pivotal driver of economic growth and structural transformation in Nigeria. Over the past four decades, entrepreneurial activity in Nigeria has not only generated employment and reduced poverty, but also stimulated innovation and diversified the economy beyond oil dependence (Okon and Nkwam (2026). Scholars argue that entrepreneurial activity stimulates job creation, enhances productivity, and diversifies economic output away from traditional resource dependence (Nkwo & Eneiga, 2024). In the context of persistent unemployment and macroeconomic fragilities, entrepreneurship offers a pathway to inclusive development, particularly through the expansion of small and medium enterprises (SMEs) that bolster domestic value chains and stimulate innovation.

A robust financial system plays an essential role in enabling entrepreneurial activity by mobilizing savings, allocating capital efficiently, and reducing transaction costs. Financial deepening—defined as the expansion of financial institutions and markets and their capacity to deliver a broader range of services—affects the ability of entrepreneurs to access funding and manage risk (Linus et al., 2025). Empirical evidence from Nigeria suggests

that improvements in bank and institutional development can significantly enhance entrepreneurial performance, while weaknesses in other financial segments, such as insurance, can impede growth (Linus et al., 2025). Financial technologies and innovations, including digital banking and fintech platforms, have also been shown to further financial inclusion and deepen financial intermediation in ways that expand opportunities for entrepreneurial engagement across sectors.

Despite this theoretical linkage, Nigerian entrepreneurs face substantial barriers in securing finance. High interest rates, stringent collateral requirements, and a narrow credit market structure constrain formal borrowing, particularly for youth led and informal enterprises (World Bank Nigeria overview, 2024). In addition, limited financial literacy and inclusion disproportionately affect women and marginalized groups, further restricting the potential contribution of entrepreneurship to national development (Kachalla & Gambo, 2025). These challenges underscore systemic gaps in financial deepening that inhibit firms from scaling and innovating, even as policy efforts aim to expand credit access through initiatives such as credit guarantee schemes (Reuters, 2025). Against this backdrop, this study examines the extent to which financial deepening has shaped entrepreneurial development in Nigeria over the period 1981–2024. While theoretical and cross-sectional studies highlight the importance of financial sector growth for entrepreneurship, there remains a dearth of long-term empirical analysis that integrates financial sector dynamics with entrepreneurial outcomes in the Nigerian context. This gap limits policymakers' ability to design interventions that effectively harness financial system reforms for strengthening entrepreneurial ecosystems.

2. Literature Review

2.1 Concept of Financial Deepening

Financial deepening describes the process through which the financial system of an economy becomes more developed, efficient, and accessible. It involves the expansion of financial institutions, the diversification of financial instruments, and improvements in the ability of financial markets to mobilize savings and allocate funds to productive sectors of the economy. In essence, financial deepening reflects how effectively the financial sector can channel financial resources from savers to investors while supporting economic activities.

Common indicators used to measure financial deepening include money supply, credit to the private sector, interest rates, and other measures that capture the level of financial sector development. As the financial system expands and becomes more efficient, businesses and individuals gain better access to financial services such as savings facilities, credit, and investment opportunities (Yusheng, et al. (2021).

In developing countries like Nigeria, financial deepening plays a critical role in promoting economic growth and structural transformation. A well-functioning financial system improves the availability of capital for investment, which enables entrepreneurs and businesses to undertake productive activities, introduce innovations, and expand their operations. As financial institutions grow and financial markets become more sophisticated, access to finance improves, thereby supporting entrepreneurship and economic development (Beck and Levine (2025); World Bank, 2022).

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Entrepreneurial Development

Entrepreneurial development refers to the process of strengthening the ability of individuals and businesses to create, manage, and expand economic ventures. It encompasses activities such as the establishment of new firms, expansion of existing enterprises, innovation, job creation, and improvements in productivity across various sectors of the economy.

Entrepreneurship is widely regarded as an important engine of economic growth because it stimulates innovation, generates employment opportunities, and increases income levels within the economy. In developing economies, entrepreneurship also contributes to poverty reduction and improved living standards (Acs, et al., 2018).

In Nigeria, entrepreneurial development plays a particularly important role in reducing the country's heavy reliance on oil revenues and promoting economic diversification. The growth of entrepreneurial activities in sectors such as agriculture, manufacturing, trade, and services has become essential for sustaining economic development.

In this study, entrepreneurial development is measured using Non-Oil Gross Domestic Product (Non-Oil GDP). Non-oil GDP represents the total output generated by economic sectors outside the petroleum industry. These sectors are largely driven by private businesses, small and medium-scale enterprises, and entrepreneurial initiatives. Therefore, an increase in non-oil GDP reflects greater entrepreneurial activity and stronger participation of the private sector in the economy (World Bank, 2022; IMF, 2023).

Historical Relationship between Financial Deepening and Entrepreneurial Development in Nigeria

Nigeria's financial sector has experienced several reforms aimed at improving financial intermediation and supporting economic development. Since the early 1980s, various policy measures have been introduced to strengthen financial institutions, improve access to credit, and enhance financial sector efficiency.

One of the most notable reforms was the Structural Adjustment Programme (SAP) introduced in 1986, which sought to liberalize the financial sector by removing interest rate controls, encouraging competition among financial institutions, and improving credit allocation mechanisms. These reforms marked the beginning of significant financial sector transformation in Nigeria (Sanusi, 2021).

Later reforms, including the banking sector consolidation of 2004, financial sector recapitalization, and the introduction of several credit intervention programs, were designed to further strengthen the financial system and promote private sector growth. These initiatives increased the capacity of banks to provide credit to businesses and improved the overall stability of the financial system (Central Bank of Nigeria, 2022).

As a result of these reforms, financial deepening indicators such as money supply and credit to the private sector have increased over time. This expansion has contributed to the growth of businesses and entrepreneurial activities, particularly within non-oil sectors of the Nigerian economy.

However, several challenges continue to limit the full impact of financial deepening on entrepreneurship. High lending rates, exchange rate instability, and limited access to affordable credit often constrain business growth and discourage investment. Understanding how financial deepening indicators influence entrepreneurial development therefore remains essential for designing effective economic policies (World Bank, 2023).

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Financial Deepening Indicators

Money Supply (M2) refers to the total amount of money circulating in an economy, including cash and other highly liquid financial assets. An increase in money supply improves liquidity in the financial system, making it easier for banks to provide credit to businesses and individuals. This enhanced access to funds enables entrepreneurs to invest, expand operations, and innovate, thereby supporting entrepreneurial development.

Credit to the Private Sector represents loans and financial support provided by financial institutions to businesses and individuals. Access to credit is particularly important for entrepreneurs and small and medium-sized enterprises (SMEs), as it allows them to finance investments, expand production, and adopt new technologies. Greater availability of credit is therefore expected to positively influence entrepreneurial development and economic growth.

Lending Rate refers to the interest rate charged on loans by financial institutions. It reflects the cost of borrowing funds. Higher lending rates increase borrowing costs and may discourage business investment, while lower lending rates make credit more affordable and encourage entrepreneurial activities. Consequently, lending rates are generally expected to have a negative relationship with entrepreneurial development.

Exchange Rate represents the value of a country's currency relative to foreign currencies. It affects international trade, investment, and the cost of imported inputs used in production. A stable exchange rate encourages investment and business activities, whereas excessive volatility can discourage entrepreneurial growth.

Non-Oil GDP, which measures economic output excluding the petroleum sector, is used as a proxy for entrepreneurial development. It captures economic activities in sectors such as agriculture, manufacturing, trade, and services, which are largely driven by private businesses. Growth in non-oil GDP therefore reflects stronger entrepreneurial participation and economic diversification.

2.2 Theoretical review

The connection between financial deepening and entrepreneurial growth in Nigeria can be better understood through several economic and financial theories.

Financial intermediation theory explains how well-developed financial systems—like banks, microfinance institutions, and capital markets—act as bridges, directing savings toward productive businesses while reducing costs and information gaps between lenders and borrowers. In a well-functioning financial system, credit becomes more accessible and affordable, enabling entrepreneurs to invest, innovate, and expand their businesses (Levine, 1997; Linus et al., 2025).

Similarly, Schumpeter's theory of economic development highlights entrepreneurship as a central engine of growth, driven by innovation and the creation of new markets. Entrepreneurs rely on capital to turn their ideas into viable ventures, and financial deepening provides the resources necessary to make that transformation possible (Nkwo & Eneiga, 2024; Kachalla & Gambo, 2025). In Nigeria, where economic diversification is a national goal, having access to finance is critical for turning entrepreneurial vision into tangible economic impact.

Yet, the reality on the ground can be more challenging. Resource dependence and pecking order theories suggest that firms often prefer to use internal funds first, turning to external financing only when necessary. For many Nigerian SMEs, high interest rates, strict collateral requirements, and limited credit options restrict their ability to grow and innovate, leaving untapped potential in the entrepreneurial sector (Adediran, 2025).

2.3 Empirical Review

Empirical studies have consistently highlighted the crucial role of financial deepening and entrepreneurial financing in promoting economic growth and business development in Nigeria. Gbanador and Okeke (2025) investigated the impact of SME financing on Nigeria's economic growth, focusing on SME loans (SML), credit to the private sector (CPS), and the monetary policy rate (MPR) from 1993 to 2023. Using annual data from the Central Bank of Nigeria Statistical Bulletin, they applied rigorous econometric techniques, including the Augmented Dickey-Fuller (ADF) test for unit roots and the Autoregressive Distributed Lag (ARDL) model for analysis. Post-estimation diagnostics, such as the ARCH test for heteroskedasticity, Breusch-Godfrey serial correlation test, Ramsey RESET, histogram normality, and CUSUM stability tests, ensured the robustness of results. Their findings indicated that while SME loans and monetary policy rate had positive but statistically insignificant effects on GDP, credit to the private sector had a significant positive impact. The study highlights the importance of broad-based credit access in stimulating economic activity, suggesting that policies that facilitate SME financing can meaningfully support national economic growth.

Echoing the importance of entrepreneurship, Okijie and Effiong (2024) examined MSME development in Nigeria from a multifaceted perspective, framing entrepreneurship as "an engine of growth." They identified several constraints that limit entrepreneurial progress, including financing challenges, poor management practices, inadequate infrastructure, socio-cultural barriers, strategic planning deficiencies, multiple taxes, and unstable policies. These findings emphasize that while the potential for entrepreneurship is high, structural and systemic challenges often prevent Nigerian SMEs from reaching their full potential.

The interplay between financial deepening and entrepreneurial growth has also been a focus of research. John (2017) analyzed the relationship between financial deepening and entrepreneurship using data spanning 1986–2016. By examining indicators such as money supply to GDP (M2/GDP), credit to the private sector to GDP (CPS/GDP), and the ratio of deposit money banks' branches to GDP (DMBB/GDP), the study found that while M2/GDP and CPS/GDP had positive but largely insignificant effects on entrepreneurial growth, DMBB/GDP negatively and significantly affected entrepreneurship. This suggests that certain financial deepening indicators, particularly money supply and private sector credit, are more effective in promoting entrepreneurial growth.

In a related study, Nwajiaku et al. (2020) examined financial deepening and entrepreneurial growth from 1986 to 2018 using Granger causality and ARDL models. Interestingly, they found no significant direct effect of financial deepening on entrepreneurial growth. Instead, entrepreneurial activity was shown to stimulate financial deepening, particularly through banking and insurance sector expansion. The authors recommended that the Central Bank of Nigeria (CBN) encourage commercial banks to increase lending to entrepreneurs and suggested reducing the monetary policy rate to single digits. They also advocated for the creation of entrepreneurial training and skill acquisition centers in all tertiary institutions to enhance human capital and capacity for sustainable business development.

Ehiedu et al. (2022) conducted a comprehensive study on financial deepening (FD) and entrepreneurial growth (EG) in Nigeria over a 36-year period (1986–2021). They measured FD using indicators such as broad money supply to GDP (M2/GDP), private sector credit to GDP (PSC/GDP), market capitalization to GDP (MCAP/GDP), and loans to SMEs to GDP (LSMSE/GDP), with SME output (SMSEO) serving as a proxy for entrepreneurial growth. Drawing on data from the Central Bank of Nigeria and the World Bank, the study

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employed descriptive statistics, correlation, and multiple regression analysis using E-Views 9.0. Their findings revealed that financial deepening measures had both positive and negative significant effects on SME output, underscoring the importance of not only access to finance but also the quality, distribution, and efficiency of financial resources in driving entrepreneurship.

The critical role of funding for entrepreneurial ventures is further emphasized by Lawal, et al. (2017). They argue that access to finance is not only necessary for launching a business but also essential for ensuring its sustainability. Funding challenges are prevalent in all economies, including knowledge-based ones, and the inability to secure adequate capital forces many ambitious entrepreneurs to abandon promising ventures. Their work highlights the need for policies that bridge financing gaps and provide accessible and reliable financial support to entrepreneurs.

Okoh et al. (2022) explored how entrepreneurship financing influences human capital development in Nigeria between 1992 and 2021. Using ARDL models, they found that SME credit significantly contributes to long-term human capital growth, while high interest rates have little positive impact. Additionally, factors such as exchange rates and trade openness showed varying effects on human capital, illustrating the intricate relationship between financing, business growth, and broader socio-economic development.

Beyond conventional lending, venture capital has also proven influential. Wambui et al. (2023) studied the impact of venture capital on SMEs in Kiambu County, Kenya. Their findings revealed that financial, managerial, and technical support from venture capital investors, alongside monitoring mechanisms, significantly enhanced SME growth. Although conducted outside Nigeria, the study suggests that similar interventions could be effective locally, emphasizing the importance of both capital provision and value-added support in fostering entrepreneurship.

Historical research also supports the link between SME financing and national economic development. Abdul-Kemi (2014) showed that commercial and microfinance bank lending positively influenced sectors such as transportation, commerce, manufacturing, and food processing. Aderemi et al. (2022) further demonstrated that aggregate commercial bank financing significantly boosted industrial output between 1990 and 2018, with targeted loans in manufacturing and food processing also influencing production levels.

Ighoroje and Ujuju (2021) investigated the impact of financial deepening on industrial output in Nigeria from 1987 to 2019. By analyzing money supply, market capitalization, and private sector credit as proportions of GDP, they found that private sector credit had short-term positive effects on industrial output, whereas money supply and market capitalization had limited influence. Their findings challenge traditional financial deepening theories, such as McKinnon and Shaw (1973), which emphasize the role of interest rate adjustments as primary growth stimulators.

Financial innovation and literacy also play significant roles in shaping entrepreneurial success. Ochanda (2014) found that access to credit and financial innovations positively impacted SME growth in Nairobi County, while high regulation, inflation, and interest rates hindered development. In Nigeria, Kachalla and Gambo (2025) demonstrated that financial literacy and inclusion strongly correlate with entrepreneurial performance. Surveying 385 Nigerian entrepreneurs, they found that financial knowledge enhances profitability, revenue growth, and sustainability. However, low financial literacy, limited access to financial services, and socio-economic barriers—particularly affecting women and marginalized groups—remain persistent obstacles, emphasizing the need for targeted educational and policy interventions.

Collectively, these studies reveal a consistent narrative: financial deepening, accessible credit, and financial literacy are vital enablers of entrepreneurial growth in Nigeria. SMEs thrive when financial resources are available, institutions are supportive, and business owners are equipped to manage capital effectively. Yet, persistent challenges such as high borrowing costs, collateral requirements, inadequate infrastructure, regulatory constraints, and knowledge gaps continue to limit entrepreneurial potential. Addressing these barriers is essential not only for fostering individual business success but also for sustaining industrial growth, human capital development, and broader economic progress across Nigeria.

3. Methodology

3.1 Research Design

This study adopts an ex-post facto research design to explore the relationship between financial deepening and entrepreneurial development in Nigeria. The design is suitable because it makes use of existing macroeconomic data without manipulating any of the variables. Rather than conducting experiments, the study analyzes past economic data to understand how financial deepening indicators have affected entrepreneurial development in Nigeria over the period 1981 to 2024. The study utilizes secondary time-series data covering the period 1981 to 2024. The data are obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin, which is widely recognized as a reliable and authoritative source of macroeconomic data in Nigeria. The variables extracted include non-oil gross domestic product, money supply (M2), credit to the private sector, lending rate, and exchange rate.

3.2 Model Specification

The Ehiedu et al. (2022) model was adopted with slight modification on financial deepening (FD) and entrepreneurial growth (EG) in Nigeria.

$NOILGDP = f(M2, CPS, LR, EXR)$ ……..…….…..…. (1)

Econometrically, the above model can be re-organized as follows:

$NOILGDPt = \beta 0 + \beta 1M2_{t-1} + \beta 2CPS_{t-1} + \beta 3LR_{t-1} + \beta 4EXR_{t-1} + \mu t$……..…….….. (2)

Log transformation is usually applied to GDP, M2, and CPS

$LogNOILGDPt = \beta 0 + \beta 1Log M2_{t-1} + \beta 2Log CPS_{t-1} + \beta 3LR1 + \beta 4EXR_{t1} + \mu t$……..….. (3)

Where:

NOILGDP = Non-oil GDP (proxy for entrepreneurial development)

M2 = Money supply

CPS = Credit to private sector

LR = Lending rate

EXR = Exchange rate

ε = Error term

3.3 Apriori Expectations

The a priori expectation is that the coefficients of regression are = $\beta 1 > 0$, $\beta 2 > 0$, $\beta 3 < 0$, $\beta 4 < 0$. It is expected that money supply (M2) and credit to the private sector will positively influence entrepreneurial development by

improving access to finance, while high lending rates and exchange rate volatility are likely to hinder business growth by increasing borrowing costs and financial uncertainty.

4. Data Presentation and Analysis

4.1 Descriptive statistics result

Table 1: Descriptive statistics result

	NOIL	M2	CPS	LR	EXR
Mean	46315.35	2466.109	2454.566	18.65909	136.9245
Median	24330.80	331.7000	647.9350	17.75000	121.0000
Maximum	157800.5	15065.90	12470.80	29.50000	500.0000
Minimum	3308.700	5.860000	9.650000	12.00000	0.880000
Std. Dev.	45414.31	3824.269	3370.882	5.034500	141.9264
Skewness	0.955114	1.786033	1.409722	0.638725	1.055050
Kurtosis	2.665976	5.436901	3.981526	2.318295	3.088710
Jarque-Bera	6.894326	34.27994	16.33987	3.843766	8.177380
Probability	0.031836	0.000000	0.000283	0.146331	0.016761
Sum	2037876.	108508.8	108000.9	821.0000	6024.680
Sum Sq. Dev.	8.87E+10	6.29E+08	4.89E+08	1089.886	866153.3
Observations	44	44	44	44	44

Source: E-Views 10 output extract.

The descriptive statistics describe the behavior and variability of all the employed variables over the study period. The results show that NOIL has a high average value and large standard deviation, indicating significant fluctuations over time. The mean being higher than the median suggests a positively skewed distribution, with some extremely high values. The Jarque–Bera result further indicates that the data is not normally distributed. Similarly, Money Supply (M2) and Credit to the Private Sector (CPS) display high variability, as reflected by their large standard deviations. In both cases, the mean values are much higher than the medians, suggesting the presence of extreme values and positive skewness. Their Jarque–Bera probabilities also confirm that the variables are not normally distributed. In contrast, the Lending Rate (LR) shows moderate variation, with the mean and median values being close. This indicates a more balanced distribution, and the Jarque–Bera result suggests that the lending rate is normally distributed. The Exchange Rate (EXR) also exhibits substantial fluctuations over the study period, as shown by its high standard deviation. The Jarque–Bera test indicates that it is not normally distributed. Overall, NOIL, M2, CPS, and EXR show high variability and are not normally distributed, while LR is relatively stable and normally distributed over the study period.

4.2 Unit Root Test: Augmented Dickey-Fuller Test

Table 2: Presentation of Results of Unit Root Test: Augmented Dickey-Fuller Test at Level and First Difference.

Variable	Level I(0)				1st Difference I(1)				Order of Integration
	ADF-statistics	5% Crit value	P-value	Remark	ADF-statistics	5% Crit value	P-value	Remark	
NOIL	2.096059	-3.523623	1.0000	Non-stationary	-4.865406	-3.523623	0.0017	Stationary	I(1)
M2	4.495908	-3.544284	1.0000	Non-stationary	-8.727477	-3.520787	0.0000	Stationary	I(1)
CPS	6.660424	-3.544284	1.0000	Non-stationary	-5.303199	-3.557759	0.0008	Stationary	I(1)
LR	-2.159226	-3.520787	0.4990	Non-stationary	-3.422411	-3.320687	0.0420	Stationary	I(1)
EXR	0.156653	-3.518090	0.9969	Non-stationary	-5.577365	-3.520787	0.0002	Stationary	I(1)

Note: Statistical decisions are based on 5% level of significance.

Source: Author's computation.

Table 2 presents the results of the Augmented Dickey–Fuller (ADF) unit root test conducted to determine the stationarity properties of the variables used in the study. The test was performed at both level I(0)] and first difference I(1)] using a 5% significance level. The results show that all the applied variables are non-stationary at their levels, as their ADF statistics are less than the critical values and their probability values are greater than 0.05. However, after taking the first difference, all the variables became stationary, as the ADF test statistics are greater in absolute value than the critical values and the probability values fall below the 5% significance level. This confirms that the variables are integrated of order one, I(1). The implication of this result is that although the variables are individually non-stationary, they may share a long-run equilibrium relationship, making it appropriate to conduct a cointegration test. Consequently, the study proceeds with the Johansen cointegration test and the Vector Error Correction Model (VECM) to examine the long-run and short-run dynamics among the variables.

4.3 Cointegration Results

Table 3: Cointegration Results

Date: 03/09/26 Time: 13:32
Sample (adjusted): 1983 2024
Included observations: 42 after adjustments
Trend assumption: Linear deterministic trend
Series: NOIL M2 CPS LR EXR
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.725302	104.8885	69.81889	0.0000
At most 1 *	0.386533	50.62102	47.85613	0.0269
At most 2 *	0.285760	30.09862	29.79707	0.0462
At most 3 *	0.223379	15.96412	15.49471	0.0425

At most 4 *	0.119527	5.346411	3.841466	0.0208

Trace test indicates 5 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Source: E-Views 10 output extract.

The Johansen cointegration results reveal the existence of a long-run relationship among the variables. The Trace test indicates the presence of cointegrating equations at the 5% significance level, suggesting that Non-Oil Revenue (NOIL), Money Supply (M2), Credit to the Private Sector (CPS), Lending Rate (LR), and Exchange Rate (EXR) move together over time and share a stable long-run equilibrium relationship. Therefore, the appropriate model for estimation is the Vector Error Correction Model (VECM), as it captures both the short-run dynamics and the long-run equilibrium relationship among the variables.

Table 4: Vector Error Correction Model (VECM)

Vector Error Correction Estimates
Date: 03/09/26 Time: 14:40
Sample (adjusted): 1983 2024
Included observations: 42 after adjustments
Standard errors in ( ) & t-statistics in [ ]

Cointegrating Eq:	CointEq1
NOIL(-1)	1.000000
M2(-1)	68.01170
	(7.68956)
	[8.84468]
CPS(-1)	-69.67114
	(9.60767)
	[-7.25162]
LR(-1)	-54.37348
	(802.468)
	[-0.06776]
EXR(-1)	204.7748
	(101.189)
	[2.02369]
C	-63446.17

Error Correction:	D(NOIL)	D(M2)	D(CPS)	D(LR)	D(EXR)
CointEq1	0.042041	0.008306	0.004526	3.47E-06	-0.000164
	(0.01312)	(0.00113)	(0.00054)	(9.8E-06)	(0.00015)
	[3.20327]	[7.37791]	[8.34935]	[0.35418]	[-1.13068]
D(NOIL(-1))	0.547373	0.062617	0.030484	0.000127	-0.000525
	(0.18111)	(0.01554)	(0.00748)	(0.00014)	(0.00201)

	[3.02233]	[4.03041]	[4.07490]	[0.94241]	[-0.26157]
D(M2(-1))	-4.926836	-0.502752	-0.493344	-0.001442	0.024988
	(2.59120)	(0.22228)	(0.10703)	(0.00193)	(0.02872)
	[-1.90137]	[-2.26178]	[-4.60933]	[-0.74612]	[0.86994]
D(CPS(-1))	0.183215	-0.302486	0.452693	-0.000176	0.035434
	(3.38436)	(0.29032)	(0.13979)	(0.00252)	(0.03752)
	[0.05414]	[-1.04190]	[3.23828]	[-0.06980]	[0.94450]
D(LR(-1))	-375.2287	-12.75367	-9.296426	0.609483	2.550158
	(173.046)	(14.8444)	(7.14780)	(0.12906)	(1.91825)
	[-2.16838]	[-0.85915]	[-1.30060]	[4.72253]	[1.32942]
D(EXR(-1))	4.074812	-1.340957	-0.957876	0.007093	0.166202
	(16.7784)	(1.43931)	(0.69305)	(0.01251)	(0.18599)
	[0.24286]	[-0.93166]	[-1.38212]	[0.56680]	[0.89360]
C	3209.880	395.3628	238.1882	-0.182206	-4.997585
	(876.753)	(75.2108)	(36.2150)	(0.65389)	(9.71898)
	[3.66110]	[5.25673]	[6.57705]	[-0.27865]	[-0.51421]
R-squared	0.797325	0.942829	0.972248	0.436445	0.325234
Adj. R-squared	0.762581	0.933029	0.967491	0.339836	0.209559
Sum sq. resids	96884777	712955.1	165302.5	53.88995	11905.37
S.E. equation	1663.772	142.7240	68.72356	1.240852	18.44325
F-statistic	22.94843	96.20060	204.3620	4.517623	2.811635
Log likelihood	-367.2740	-264.1250	-233.4305	-64.83018	-178.1840
Akaike AIC	17.82257	12.91071	11.44907	3.420485	8.818286
Schwarz SC	18.11219	13.20033	11.73868	3.710096	9.107898
Mean dependent	3670.729	358.5429	296.6531	-0.250000	11.88333
S.D. dependent	3414.571	551.5096	381.1544	1.527193	20.74450

Determinant resid covariance (dof adj.)	7.33E+16
Determinant resid covariance	2.94E+16
Log likelihood	-1094.321
Akaike information criterion	54.01531
Schwarz criterion	55.67023
Number of coefficients	40

Source: E-Views 10 output extract.

The VECM results show that monetary and financial variables significantly influence entrepreneurial development in Nigeria, both in the short and long run. In the long run, money supply and exchange rate positively affect non-oil GDP, supporting entrepreneurial growth, while credit to the private sector shows a negative relationship, suggesting inefficient credit allocation. Lending rates are largely insignificant, implying limited long-term impact of borrowing costs on entrepreneurship. The error correction term (ECT) in the non-oil GDP equation is 0.042, and it is statistically significant (t = 3.20). This indicates that deviations from the long-run equilibrium are corrected gradually. Specifically, about 4.2% of any disequilibrium in the previous period is adjusted in the current period, implying a slow but stable adjustment process toward long-run equilibrium. In the short run, past growth in non-oil GDP sustains current entrepreneurial activity, credit expansion shows limited positive short-run impact,

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and higher lending rates constrain entrepreneurial output, while exchange rate effects remain insignificant, and highlighting time lags in policy transmission.

4.4 Discussion of Results

The results from the VECM show that monetary and financial factors continue to play a critical role in shaping entrepreneurial development in Nigeria. In the long run, increases in money supply (M2) and favorable movements in the exchange rate (EXR) positively influence non-oil GDP, suggesting that more liquidity and a competitive exchange rate environment help businesses outside the oil sector thrive. This aligns with Schumpeter's theory of economic development, which emphasizes that access to finance fuels innovation and entrepreneurship. Interestingly, credit to the private sector (CPS) shows a negative long-run effect, and lending rates have limited impact, pointing to inefficiencies in the financial system where available funds are not always channeled to productive entrepreneurs. These patterns also reflect Financial Intermediation Theory, highlighting the importance of well-functioning banks, and Resource Dependence Theory, showing that entrepreneurs rely heavily on external funding but face challenges when access is constrained. Additionally, Pecking Order Theory helps explain why firms may prefer internal financing over costly borrowing in today's high-interest, high-risk environment.

In the short run, entrepreneurial activity shows persistence, as past non-oil GDP growth continues to influence current output. However, the immediate impact of credit expansion is limited, and higher lending rates negatively affect entrepreneurial performance, demonstrating how borrowing costs can constrain business growth. Exchange rate fluctuations have little short-term effect, suggesting that currency movements influence production with a lag. These findings resonate with previous studies: Gbanador and Okeke (2025) and Okoh et al. (2022) highlight the importance of credit and monetary support for entrepreneurship, while Ehiedu et al. (2022) and John (2017) point out that financial deepening only promotes entrepreneurship when resources are efficiently allocated. Structural and systemic challenges identified by Okijie and Effiong (2024)—including financing difficulties, poor infrastructure, and regulatory bottlenecks—help explain why private sector credit has not always translated into higher entrepreneurial output.

The current Nigerian economic climate further contextualizes these findings. Persistent inflation, exchange rate volatility, high lending rates, and tight credit conditions make it difficult for small and medium enterprises (SMEs) to access affordable financing. While liquidity in the economy has increased, private sector lending remains slow, reflecting cautious banking practices and inefficiencies in credit allocation. This shows that monetary expansion alone is not enough to stimulate entrepreneurship; targeted measures are needed to ensure that funds reach viable entrepreneurs, borrowing costs are manageable, and financial resources are used effectively.

Although the VECM results capture the long-run equilibrium and short-run interactions among monetary variables and non-oil GDP, they do not reveal which variables drive the others. To address this, Granger causality tests are applied to identify the direction of influence, showing whether changes in money supply, credit, lending rates, or exchange rates lead entrepreneurial growth or respond to it. This helps clarify the key channels through which financial and monetary factors impact non-oil sector development.

 E-ISSN: 2959-9121

Table5: Granger Causality Tests

Pairwise Granger Causality Tests
Date: 03/09/26 Time: 16:07
Sample: 1981 2024
Lags: 2

Null Hypothesis:	Obs	F-Statistic	Prob.
M2B does not Granger Cause NOIL	42	0.39193	0.6785
NOIL does not Granger Cause M2B		12.4307	7.E-05
CPSB does not Granger Cause NOIL	42	0.42836	0.6548
NOIL does not Granger Cause CPSB		4.69287	0.0153
LR does not Granger Cause NOIL	42	2.43449	0.1016
NOIL does not Granger Cause LR		1.36229	0.2686
EXR does not Granger Cause NOIL	42	2.98629	0.0628
NOIL does not Granger Cause EXR		4.75472	0.0145

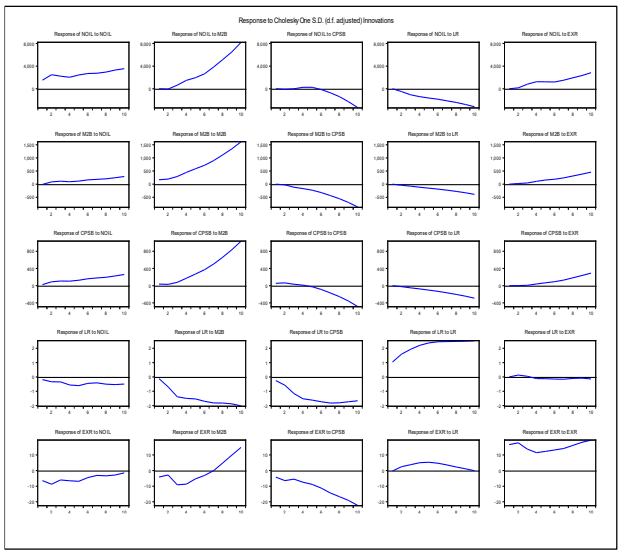
Source: E-Views 10 output extract.

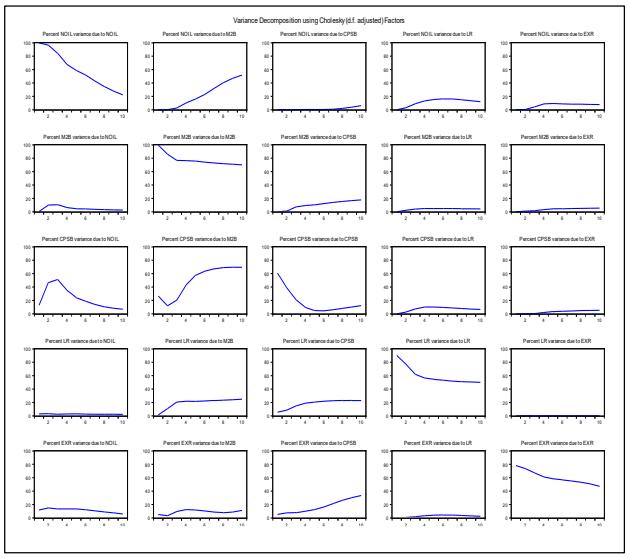
The Granger causality tests in table 5 shed light on how monetary and financial variables interact with non-oil GDP (NOIL) in Nigeria. Interestingly, the results suggest that it is non-oil GDP that drives changes in the financial system, rather than being shaped by it. Growth in the non-oil sector has a significant impact on both money supply (M2) and credit to the private sector (CPS), indicating that entrepreneurial activity stimulates liquidity and credit expansion. Similarly, NOIL also influences the exchange rate (EXR), showing that business output can have broader effects on the economy, including currency movements. In contrast, there is little evidence that money supply, private sector credit, lending rates (LR), or the exchange rate significantly predict short-term changes in non-oil GDP. Lending rates, in particular, show no meaningful causal relationship with NOIL in either direction. Overall, these findings imply that entrepreneurs are key drivers of financial and monetary dynamics in Nigeria, actively shaping liquidity and credit flows rather than merely responding to policy changes. This is consistent with earlier research, such as Nwajiaku et al. (2020), which emphasizes that economic activity itself can promote financial deepening, highlighting the critical role of entrepreneurial growth in influencing the broader financial environment.

Based on the Granger causality results; Impulse Response Functions (IRFs) and Variance Decomposition are used to examine how shocks in non-oil GDP affect financial variables over time and the relative importance of each variable in driving fluctuations. These tests provide a clearer picture of the dynamic interactions between entrepreneurial growth and the financial system, while stability checks ensure the results are robust.

 E-ISSN: 2959-9121

Table 6: Impulse Response Functions (IRFs) and Variance Decomposition Results





Source: E-Views 10 output extract.

The Impulse Response Functions (IRFs) and Variance Decomposition analyses in tables 6, highlight how entrepreneurial growth—measured by non-oil GDP (NOIL)—dynamically affects key financial variables in Nigeria. The IRFs show that shocks to NOIL lead to increases in money supply (M2) and private sector credit (CPS) over time, suggesting that as entrepreneurial activity expands, it drives greater liquidity and stimulates lending by financial institutions. This aligns with studies like Nwajiaku et al. (2020), which found that entrepreneurial growth can actively promote financial deepening, rather than being solely influenced by it.

The Variance Decomposition results further support this view, showing that over time, fluctuations in M2 and CPS are increasingly explained by shocks to NOIL. This reinforces findings by Ehiedu et al. (2022), emphasizing that access to financial resources and efficient financial systems are vital for sustaining entrepreneurial growth. In contrast, lending rates (LR) show weak responses in both analyses, echoing Okoh et al. (2022), who noted that interest rates have limited influence on entrepreneurship compared to direct credit availability.

Overall, the IRFs and variance decomposition analyses underscore that entrepreneurial activity is a key driver of financial sector dynamics in Nigeria, shaping credit flows and liquidity while gradually influencing the broader financial system.

5. Summary, Conclusion and Recommendations

5.1 Summary of the Study

This study explored the relationship between entrepreneurial development, represented by non-oil GDP (NOIL), and key financial variables in Nigeria, including money supply (M2), credit to the private sector (CPS), lending rates (LR), and the exchange rate (EXR), covering the period 1981–2024. Using Johansen cointegration, the study confirmed a stable long-run relationship among these variables, justifying the use of the Vector Error Correction Model (VECM) to capture both short- and long-term dynamics. Results showed that money supply and exchange rate positively influence entrepreneurial growth, while credit to the private sector exhibited a negative long-run

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effect, suggesting inefficiencies in credit allocation. Lending rates had little impact, indicating borrowing costs alone do not significantly constrain entrepreneurship in the long run. Short-run dynamics revealed that past non-oil GDP growth sustains current entrepreneurial activity, while credit expansion has limited immediate effects, and higher lending rates can hinder output. Granger causality tests indicated that non-oil GDP drives changes in M2, CPS, and EXR, emphasizing that entrepreneurial growth is a key force shaping the financial system, rather than merely responding to it.

Finally, Impulse Response Functions (IRFs) and Variance Decomposition analyses demonstrated that shocks to non-oil GDP increase money supply and private sector credit over time, confirming that entrepreneurial activity actively drives liquidity and credit expansion in Nigeria.

5.2 Conclusion

The study concludes that entrepreneurial development is a central driver of Nigeria's financial and monetary dynamics. Growth in the non-oil sector stimulates liquidity, promotes credit expansion, and influences exchange rate movements, while lending rates have limited effect. These findings highlight that entrepreneurs are not just recipients of financial resources—they actively shape the financial environment, reinforcing the importance of supporting business activity outside the oil sector.

5.3 Recommendations

Based on the findings of this study, several practical steps can be taken to strengthen entrepreneurial development and improve the effectiveness of financial support systems in Nigeria.

- Financial institutions should make it easier for small and medium-sized enterprises (SMEs) and entrepreneurs to access credit. This can be achieved by simplifying lending procedures, reducing excessive collateral requirements, and ensuring that available funds are directed toward productive and viable business activities.
- Since the non-oil sector plays a key role in driving entrepreneurial development, government policies should focus on supporting businesses in areas such as agriculture, manufacturing, and services. This can be done through targeted incentives, better infrastructure, and programs that help entrepreneurs develop the skills needed to grow their businesses.
- Banks and other financial institutions should design lending products that are better suited to the needs of entrepreneurs. Flexible loan structures, longer repayment periods, and supportive advisory services can help businesses access funding while maintaining responsible lending standards.
- Policymakers should work toward maintaining stable exchange rates, manageable interest rates, and consistent monetary policies that encourage investment, reduce uncertainty, and support long-term business development.

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