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Empirical Analysis of Capital Market Indicators on Capital Formation in Nigeria

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Abstract

This study examines the impact of capital market indicators on capital formation in Nigeria from 1990-2023 using stock market indicators of All-Share Index, market capitalization, value of shares traded and volume of transactions while gross capital formation was proxied for capital formation. Secondary data were obtained from the Nigeria Exchange Group and Central Bank of Nigeria Statistical Bulletin. Regression analysis was employed to obtain results for the study. Findings from the study show that All-Share Index, market capitalization, value of shares traded, volume of transactions were statistically significant to gross capital formation. The statistical significance of all the variables shows the importance of capital market on capital formation, hence government should take adequate measures to strengthen the capital market to boost the economy so as to provide better access to funds for investment purposes and hence, further stimulating capital formation which is an essential ingredient for economic growth.

Keywords: Capital Market Indicators, Capital Formation, Regression Analysis, Nigeria

1. Introduction

The process of economic growth requires the effective utilization of the factors of production and these factors are classified as land, labour, capital and entrepreneur. Land, labour, capital and entrepreneur are available in Nigeria. The question is "why is Nigeria still an underdeveloped country"? The answer lies in the fact that the capital stock is low? Hence, insufficient or limited availability of investible capital, especially in the productive sectors of the Nigerian economy has been identified as the bane of weak investment climate in Nigeria (Olaosebikan, Olaniyi & Ojekunle, 2022). In addition, Nigeria's investment climate has been volatile, which has led to the economy's unsustainable growth.

Nevertheless, for every economy striving for sustainable development, it is imperative to possess a durable and consistent funding mechanism (UNDP, 2013). This is because the insufficiency or absence of capital has been acknowledged by governments and private investors as a hindrance to the execution of economic development programmes and projects at different times (Ajose & Oyedokun, 2018sustainable growth requires an enduring dedication to appropriate resources. Undoubtedly, finance will be crucial in attaining these objectives of economic development and

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progress (Musa, Magaji & Adewale, 2023)..; Ayadi & Williams, 2023). Undoubtedly, bridging the disparity between the present condition and the desired state in Nigeria necessitates the implementation of several approaches, such as creating a conducive atmosphere and allocating sufficient resources.

Hence, the financial system of any nation is simply seen as a framework through which capital formation takes place. In order words, it is the mechanism through which the savings of some members of society are made available for productive investments (Umar, 2022). Financial institutions facilitate this process, serving as the fundamental components of the monetary and investment markets. The swift process of industrialization and modernization of an economy relies on several elements, with the most crucial being the availability of sufficient financial resources. The Nigerian government's objective to enhance the capital market is closely connected to the economy's aim of expediting industrial and agricultural growth (Bello, Zubairu & Ibrahim, 2022). The capital market is recognized as an institution that plays an important role in fostering socioeconomic growth and development of both emerging and developed countries (Chidi-Okeke, & Ubah, 2023). This is facilitated by the crucial functions performed by the financial sector in directing resources, advocating for reforms to update the financial sector, the ability to connect the sectors of the economy with deficits and surpluses through financial intermediation, and serving as an effective tool in mobilizing and allocating savings for various competitive purposes that are vital for the growth and effectiveness of the economy. It facilitates the distribution of capital and long-term resources to companies thereby fostering economic expansion and growth. (Gbenga & Samuel, 2023).

Capital market is a component of the financial market offers cost-effective, extended-duration funding for businesses operating within the economy. It facilitates domestic investment and acts as a catalyst and propeller of economic expansion in both developed and emerging nations (Osuka, 2022). Capital market undertakes a crucial role in facilitating acquisition of long-term funds for capital formation. It provides platforms for trading various types of securities. These securities can either be debt or ownership instruments, or a combination of both (Ikwuagwu & Onyele, 2020). The capital market facilitates the identification of surplus funds from the public's surplus economic units and allocates them to deficit economic units (Udofia, Onwioduokit & Effiong, 2022). As a

network that connects holders of long-term financial instruments with potential buyers, it serves as a mechanism for raising the funds needed to finance both the initial investment and ongoing operational expenses of businesses in an economy. This is made possible by the participation of various market participants with different sizes of asset portfolios.

1.2 Research Problem

Financial experts indicate that while Nigeria possesses a burgeoning capital market, there are evident gaps in its ability to fully enhance capital formation. These gaps are influenced by issues such as market volatility, regulatory challenges, and investor skepticism, which may stem from economic instability and historical financial crises. The precise issue this research aims to address is the inefficiency in capital formation despite the active presence of capital markets in Nigeria. There is a need to delve deeper into understanding the specific barriers that hinder effective capital accumulation and investment in the economy. This understanding is crucial, as capital formation is the backbone of economic development, enabling the creation of wealth and improving living standards. (Bello, et al., 2022).

The relevance of this problem is underscored by Nigeria's strategic development goals and the potential of the capital market to drive national economic reform. Enhancing the efficiency of this market could lead to more robust economic growth, job creation, and improved fiscal stability. Therefore, investigating these dynamics is not only pertinent for policymakers and investors but also for the general populace affected by the economic outcomes derived from these market operations.

However, existing literature and research have not sufficiently addressed the specific factors and underlying barriers that contribute to these inefficiencies in capital formation within the Nigerian context. This gap in research limits the understanding of how to effectively tackle these challenges to optimize the capital market's potential.

1.3 Research Objectives

The main objective of this study is to investigate the impact of capital market on capital formation in Nigeria. The specific objectives are to:

(a)   Examine the impact of all share index on capital formation.

(b)   Investigate the impact of market capitalization on capital formation.

(c)   Determine the influence of value of shares traded on capital formation

(d)   Examine the impact of volume of transactions on capital formation.

2. Literature Review

Olaosebikan, Olaniyi and Ojekunle (2022) investigates capital market performance on capital formation in Nigeria with particular emphasis on market capitalization on gross capital formation in Nigeria ranging from 1980-2020. Findings from the study show that a negative and significant relationship was found among the variables by the authors implying that capital market has influence on capital formation in Nigeria.

Babarinde, Abdulmajeed, Mohammed and Shuaib (2020) examines the impact of stock market indicators on gross capital formation in Nigeria from 1985-2018. Results from their study revealed a long- run relationship among the variables.

Onwe and Adeleye (2018) analyzed the effect of capital market on Nigerian economic growth for a period of 1990-2014. The authors opined that stock market had a significant but weak impact on the Nigerian economy which is in contrast to the results of Babarinde, Abdulmajeed, Mohammed and Shuaib (2020).

Agu (2018) appraises the effect of economic growth to capital market development in Nigeria with the use of time series data spanning 1995-2016 using ordinary least square regression method. They opined that market capitalization has a negative relationship with real gross domestic product in Nigeria.

Ezema, Okoye and Obinabo (2019) investigate the effect of capital market on the Nigerian economy for thirty–eight years (1981-2018). Applying Auto regressive distributed lag technique, they discovered a positive relationship between market capitalization and economic activities positively.

Orji, Ogbuabor and Anthony-Orji (2018) analyses the effect of macroeconomic indicators on capital formation in Nigeria with the use of Autoregressive Distributed Lag Model (ARDL) and found out that foreign aid had positive impact on capital formation growth in Nigeria. However, exchange rate, trade openness amongst others had negative effect for the period of investigation. Angaye and Frank (2020) analyzes capital market development and economic growth in for twenty-seven years, that is, 2008-2018 in Nigeria with the aid of multiple regression analysis. They found out that stock market is positively related to economic growth and has no significant effect on economic growth in Nigeria.

Ogbulu and Chidozie (2019) x-ray the link that arises among stock market liquidity and fixed capital formation in Nigeria for thirty-eight years (1981 to 2018). Johansen co-integration test amongst others techniques were employed. The authors found a long run co-integrating relationship among the variables.

From the reviewed literature, there is absence of consensus between capital market and capital formation in Nigeria, hence the basis for this study.

3. Methodology

3.1 Model Specification

The regression model by Olaosebikan, Olaniyi and Ojekunle (2022) was adapted for the study with some modifications and is given in equation (3.1) below.

GFCF = f (ASI, MCAP, VOS, VOT, IFR, ITR, EXR) . . . . (.3.1)

The above equation is re-specified in a stochastic form as follows:

$GFCF = \beta_0 + \beta_1 ASI + \beta_2 MCAP + \beta_3 VOS + \beta_4 VOT + \beta_5 IFR + \beta_6 ITR + \beta_7 EXR + \mu$ . . .   (.3.2)

Where:

GFCF= Gross Fixed Capital formation (dependent variable)

ASI = All share Index (MCAP = Market capitalization

VOS= Volume of share traded

VOT = Volume of Transaction

IFR= Inflation rate

ITR = Interest rate

EXR = Exchange rate

μ =stochastic error term

β_0……. β_7 = regression coefficients of the parameter estimate.

3.2 Sources and Types of Data

Data which are secondary in nature were obtained from the Nigeria Exchange Group (NGX) Fact Book, and Central Bank of Nigeria Statistical Bulletin.

4. Analysis and Interpretation
Table 4.1 Summary of Descriptive statistics

	GFCF	MCAP	ASI	VST	VOT	IFR	ITR	EXR
Mean	8841.54	9323.95	20716.6	545.676	944335.	18.1231	18.3953	137.913
Median	8405.86	4010.48	22335.8	366.594	877389.	12.7158	17.9650	129.004
Maximum	12515.1	42054.5	57990.2	2350.87	353563.	72.8355	29.8000	399.963
Minimum	6860.44	16.3000	513.800	0.22540	39270.0	5.38800	11.5500	8.03780
Std. Dev.	1535.43	11433.3	15162.8	600.084	940496.	16.3504	3.60474	106.889
Skewness	0.85111	1.31005	0.33469	1.02238	1.20105	2.16495	0.99400	0.78505
Kurtosis	2.81107	4.12523	2.32676	3.66723	3.90365	6.62330	5.07621	2.94686
Jarque-Bera	3.91101	10.8415	1.20177	6.16834	8.78223	42.5018	11.0170	3.29073
Prob	0.14149	0.00442	0.54832	0.04576	0.01238	0.00000	0.00405	0.19294

Source: EViews 10 Result (2024)

The mean GFCF value during the observed period is 8,841.54. The 50th percentile of the GFCF data is represented by the middle value of 8,405.86. The highest recorded value for GFCF is 12,515.1. The recorded minimum value for GFCF is 6,860.44. The standard deviation of GFCF is 1,535.43, which signifies the amount of dispersion or variability among the data points in relation to the mean. Skewness is a statistical measure that quantifies the degree of asymmetry in a distribution. A skewness value of 0.85111 indicates a right-skewed distribution, meaning that the tail of the distribution is stretched towards higher values. Kurtosis is a statistical measure that quantifies the shape of a distribution. The average market capitalization, All-Share Index, value of the shares that were traded, transaction volume, inflation rate, interest rate, exchange rate as well as their values of kurosis, Jarque-Bera amongst others were shown in the above Table.

Table 4.2: Augmented Dickey-Fuller Unit Root Test

Variable	Test at Levels			Test at 1st difference			Inference
	ADF statistic	t-statistic	Prob.*	ADF statistic	t-statistic	Prob.*	
GFCF	-2.052179	-2.945842	0.2644	-4.850754	-2.945842	0.0004	I(1)
MCAP	-0.783378	-2.941145	0.8124	-4.188023	-2.943427	0.0022	I(1)
ASI	-1.469541	-2.941145	0.5380	-4.833307	-2.943427	0.0004	I(1)
VST	-0.924438	-2.943427	0.7692	-3.670680	-2.943427	0.0088	I(1)
VOT	-0.627951	-2.954021	0.8509	-6.464131	-2.943427	0.0000	I(1)
ITR	-1.021398	-2.941145	0.7358	-6.281700	-2.943427	0.0000	I(1)
IFR	-2.915636	-2.941145	0.0529	-5.672642	-2.943427	0.0000	I(1)
EXR	-0.508733	-2.948404	0.8777	-4.377405	-2.948404	0.0014	I(1)

Source: EViews 10 Result (2024)

Table 4.2 shows that all the variables are integrated of the same order 1(1) (not stationary). Hence, application of cointegration test to show whether there is long run relationship among the variables.

Table 4.3: Johansen- Juselius Cointegration Test

Sample (adjusted): 1992 2021				
Hypothesized		Trace	0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.947968	233.4044	159.5297	0.0000
At most 1 *	0.758531	144.7275	125.6154	0.0020
At most 2 *	0.664856	102.0971	95.75366	0.0170
At most 3	0.537597	69.30126	69.81889	0.0549
At most 4	0.496981	46.16172	47.85613	0.0715
At most 5	0.376641	25.54788	29.79707	0.1428
At most 6	0.203589	11.36888	15.49471	0.1898
At most 7 *	0.140430	4.539673	3.841466	0.0331

Source: E Views 10 Result (2024)

Table 4.3 presents the result for both the trace statistics cointegration rank test. The trace statistics indicates the rejection of all the null hypothesis stated at 5% critical value, this implies long run relationship among four equations in the model. Therefore it is required that the vector autoregressive (VAR) analysis is estimated through an error correction mechanism to know the rate at which errors in the VAR system are corrected in the long run and converges to equilibrium.

Table 4.4: Error Correction Model

Dependent Variable: D(GFCF_B)				
ECM Regression				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF_B(-1))	0.963097	0.137717	6.993295	0.0002
D(MCAP)	0.130740	0.043894	2.978517	0.0206
D(ASI)	0.663141	0.063284	10.47881	0.0000
D(VST)	0.114602	0.017904	6.400964	0.0004
D(VOT)	0.001418	0.000329	4.312699	0.0035
D(IFR)	0.411147	6.180654	0.066522	0.9488
D(ITR)	-101.4674	19.96349	-5.082649	0.0014
D(EXR)	13.59821	4.112899	3.306235	0.0130
ECM(-1)*	-0.796753	0.218481	-3.646785	0.0000
R-squared	0.940108	Mean dependent var		175.8278
Adjusted R-squared	0.884209	S.D. dependent var		1061.104
Log likelihood	-208.8434	Hannan-Quinn criter.		15.14702
Durbin-Watson stat	2.550110			

Source: EViews 10 Result (2024)

Table 4.4 shows the coefficients to the statistical measures of the model's fit. (GFCF_B(-1)): The coefficient for the lagged value of GFCF_B is 0.963097, hence, the coefficient is statistically significant at a high level of confidence (p-value = 0.0002).

MCAP: MCAP (Market Capitalization) is 0.130740, suggesting a one-unit increase in MCAP brings about a 0.130740-unit increase in GFCF_B. The coefficient is statistically significant at a 5% level of significance (p-value = 0.0206).

ASI: The coefficient for ASI (All Share Index) is 0.663141, indicating a one-unit increase in ASI leads to a 0.663141-unit increase in GFCF_B. The coefficient is highly statistically significant (p-value = 0.0000).

VST: 0.114602 is the coefficient for VST (Value of Shares Traded) showing that a one-unit increase in VST results to a 0.114602-unit increase in GFCF_B. The coefficient is statistically significant at a high level of confidence (p-value = 0.0004).

VOT: VOT (Volume of Transaction) is 0.001418, meaning that a one-unit increase in VOT brings about a 0.001418-unit increase in GFCF_B. It is statistically significant at a 1% level of significance (p-value = 0.0035).

IFR: IFR (Inflation Rate) is 0.411147. However, the coefficient is associated with a very large standard error (6.180654) and a high p-value (0.9488), showing no significance. Therefore, we cannot draw any meaningful conclusion about the relationship between IFR and GFCF_B based on this model.

ITR: The coefficient for ITR (Interest Rate) is -101.4674, implying that a one-unit increase in ITR leads to a decrease of 101.4674 units in GFCF_B. The coefficient is statistically significant at a 1% level of significance (0.0014).

EXR: The coefficient for EXR (Exchange Rate) is 13.59821. This implies that a one-unit increase in EXR results to a 13.59821-unit increase in GFCF_B. The coefficient is statistically significant at a 5% level of significance (p-value = 0.0130).

ECM (-1)*:* The coefficient for the lagged ECM (-1)) is -0.796753. This term represents the tempo of correction of deviations from long-term equilibrium. A negative coefficient suggests that the system adjusts to restore equilibrium in the long run.

Overall, the error correction regression model suggests that the lagged value of GFCF_B, market capitalization, the All-Share Index, Value of Shares Traded, Volume of Transaction, and Exchange Rate have significant effects on the Gross Fixed Capital Formation (GFCF_B). However, the coefficient of Inflation Rate is not statistically significant, indicating that it may not have a meaningful relationship with GFCF_B in this model.

5. Conclusion

The findings indicate that the capital market variables, such as market capitalization (MCAP), the All-Share Index (ASI), the Value of Shares Traded (VST), and the Volume of Transaction (VOT), have significant positive effects on Gross Fixed Capital Formation (GFCF_B) in Nigeria. This

suggests that a well-functioning and vibrant capital market can play a crucial role in promoting capital formation.

The positive coefficients for MCAP and ASI highlight the importance of investor confidence and financial market performance. Higher market capitalization and positive stock market performance reflect favorable economic prospects and investor sentiment, encouraging investment in fixed capital. Additionally, the positive coefficients for Value of Shares Traded and Volume of Transaction indicate that increased trading activity and liquidity in the capital market provide better access to funds for investment purposes, further stimulating capital formation.

Furthermore, the negative coefficient for the Interest Rate (ITR) variable suggests that higher interest rates tend to dampen capital formation. This finding aligns with the theory of investment demand, indicating that higher borrowing costs can discourage investment spending. Therefore, it is imperative for policymakers to consider the interest rate environment and implement measures that promote favor able lending conditions to support capital formation in Nigeria.

Although the coefficient for the Inflation Rate (IFR) variable was not statistically significant in this model, it is important to note that inflation may have indirect effects on capital formation through its impact on various macroeconomic factors, such as investor confidence, cost of inputs, and purchasing power.

5.1 Recommendations
The study makes the following recommendations

i. Enhance Investor Confidence: Measures should be taken to bolster investor confidence in the capital market. This can be achieved through transparent and efficient regulatory frameworks, investor protection mechanisms, and strict adherence to corporate governance standards. Building trust among investors will attract more capital and promote capital formation.

ii. Strengthen Market Infrastructure: It is essential to invest in robust market infrastructure, including trading platforms, settlement systems, and information dissemination mechanisms. Improving the efficiency and reliability of the capital market infrastructure

will facilitate smoother transactions, enhance liquidity, and attract more participants, thereby stimulating capital formation.

iii.   Promote Financial Literacy: Increasing financial literacy among market participants, including investors and potential issuers, is crucial. Educating individuals about the benefits and risks of participating in the capital market can empower them to make informed investment decisions and encourage capital formation. This can be achieved through educational programs, workshops, and awareness campaigns.

iv.   Facilitate Access to Capital: An enabling environment should be made to facilitate access to capital for businesses. This can be achieved by streamlining regulations, reducing bureaucratic hurdles, and developing appropriate financing mechanisms tailored to the needs of different sectors. Encouraging the listing of more small and medium-sized enterprises (SMEs) on the stock exchange can also promote capital formation.

v.   Lower Cost of Capital: Efforts should be made to lower the cost of capital by implementing measures that reduce interest rates and borrowing costs. This can be achieved through prudent monetary policies, targeted interventions to lower lending rates, and providing incentives for long-term capital investment. Lowering the cost of capital will incentivize businesses to undertake productive investments, thereby boosting capital formation.

References

Agu, B. O. (2018). Economic growth and capital market development in Nigeria An appraisal. Journal of Business Management and Economic Research, 2(4) 27-38, Doi: 10.29226/TR1001.

Ajose, K. Oyedokun, G. E. (2018). Capital formation and economic growth in Nigeria. *In*: *Accounting and Taxation Review*, 2 (2), 131 - 142.

Anderu, K. S. (2020). Capital market and economic growth in Nigeria. *Jurnal Perspektif Dan Pembangunan Daerah*, *8*(3), 295-310.

Angaye, Frank (2020). Capital market development and economic growth in Nigeria (2020). *American International Journal of Business Management*, 3(7), 58-63.

Ayadi, O. F., & Williams, J. (2023). Stock market development and capital formation in selected African economies. *Journal of Money and Business*, 5(3), 67-78

Babarinde, G. F., Abdulmajeed, T. I., Mohammed, H. K., & Shuaib, A. A. (2020). Relationship between stock market indicators and gross capital formation in Nigeria (1985-2018): a long-run analysis. *Nigerian Journal of Accounting and Finance*, *12*(1), 102-116.

Bello, U., Zubairu, U., & Ibrahim, U. A. (2022). Impact of Capital Market Performance on Economic Growth in Developing Nations: A Qualitative Approach. *Journal of Science and Management*, *15*(3), 340-349.

Chidi-Okeke, C. N., & Ubah, C. B. (2023). Effect of Bond Market on the Capital Market Performance in Nigeria. *Asian Journal of Economics, Finance and Management*, 7(2), 51-60

Emerenini, F. M., & Anelechi, O. P. (2018). Capital market and economic growth in Nigeria (1981–2015). *IDOSR Journal of Banking, Economics and Social Sciences*, *3*(1), 1-8.

Ezema, C. A; Okoye, G.O. & Obinabo, C. R. (2019). Impact of capital market activities on outputs, econometric evidence from Nigeria 1981-2018. *Advance Journal of Economics and Marketing Research*, 4(11), 1-16

Gbenga, O., & Samuel, I. I. (2023). Capital Market Indicators and Economic Growth in Nigeria. *Central Asian Journal of Innovations on Tourism Management and Finance*, *4*(12), 37-46.

Musa, I., Magaji, S., & Adewale, A. T. (2023). Impact of Market Capitalization on Gross Fixed Capital Formation in Nigeria: 1985-2020. *International Journal of Indonesian Business.*

Ogbulu, O.M. (2009). Capital market development and economic growth in Nigeria: Application of co-integration and causality tests, *Journal of Finance, Banking and Investment (JOFBI)*, 3(1), 1-19.

Olaosebikan, O., Olaniyi, R. B., & Ojekunle, F. J. (2022). Impact of capital market performance on capital formation in Nigeria. FUOYE *Journal of Finance and Contemporary Studies*, 3(2), 148-163.

Onwe, J. C & Adeleye, N. (2018). ARDL empirical insights on financial intermediation and economic growth in Nigeria. *Journal of Business & Economic Management*, 6(12). DOI: 10.15413/jbem.

Onyele, K. & Ikwuagwu, E. (2020). The Globalization Wave and Stock Market Return in Africa**.** *International Journal of Economics, Business and Management Studies*, 7(1), 80-94.

Orji, A., Ogbuabor, J. E., & Anthony-Orji, O. I. (2018). Macroeconomic Indicators and Capital Formation Growth in Nigeria: A New Evidence. *Journal of Social Economics Research*, *5*(2), 39-50.

Osuka, B. O. (2022). Foreign portfolio investment and the growth of Nigeria's capital market. *Fuoye Journal of Finance and Contemporary Issues*, *3*(2), 102-114

Udofia, M. A., Onwioduokit, E. A., & Effiong, U. E. (2022). The Role of Capital Market on Industrial Development in Nigeria. *Asian Basic and Applied Research Journal*, 277-286.

Ugochukwu, U. S., & Uruakpa, P. C. (2013). The impact of capital formation on the growth of Nigerian economy. *Research Journal of Finance and Accounting, 4*(9), 36-43.

Umar, B. (2022). Impact of capital market performance on economic growth in Nigeria: A systematic review. *Journal of Global Economics and Business*, *3*(10), 47-67.

UNDP. (2013).Raising resources to finance the post-2015 development agenda: Synthesis of the *Johannesburg Roundtable of Experts*. Pretoria, South Africa.