Market Capitalization and Capital Formation in Nigeria

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Abstract
This study examined the effects of stock market capitalization on capital formation in Nigeria. Time series data were sourced from Central Bank of Nigeria statistical bulletin from 1990-2021. Gross fixed capital formation was modeled as the function of government securities, corporate bonds, traded equities and all share price index. Multiple regressions with econometrics view statistical package were used as data analysis techniques. Co-integration, Granger Causality Test and Augmented Unit Root Test were used to determine the long and the short run relationship that exist among the variables. The study found that there was variation of 92.2 percent on Nigeria gross fixed capital formation of the country due to changes in market capitalization. government securities, corporate bonds, traded equities have positive effect while all share price index have negative effect on gross fixed capital formation. From the findings, we conclude that market capitalization have significant effect on Nigeria gross fixed capital formation. We recommend that need to deepen the operational efficiency of the Nigeria capital market by ensuring more firms are allow to listed in the stock exchange, Policies that effect negative corporate bonds in the Nigeria stock market should be discouraged and investment friendly policies should enacted to increase number of corporate bonds in the stock market and rate of return on government securities should increase to attract investors and more of government securities should be traded in the stock market to enhance the growth of Nigeria gross fixed capital formation.

Keywords: Market Capitalization, Gross Fixed Capital Formation, All Share Price Index,

INTRODUCTION

The impact of market capitalization on capital formation in Nigeria has often been overlooked in existing literature. Market capitalization refers to the total value of shares traded on the stock market, taking into account the number of shares and their respective prices. The stock market, also known as the equity market, plays a vital role in a market economy by providing companies with access to capital, offering ownership opportunities for primary investors, and presenting potential gains for secondary investors based on the company's future performance (Osoro, 2013). Returns from equity investments are subject to fluctuations due to various factors, both internal to the company, such as earnings per share, dividends, and book value, and external factors like interest rates, gross national output, inflation, government regulations, and exchange rates. However, there are challenges that hinder capital formation in Nigeria. For instance, the market can be expensive, which

discourages foreign investors. Additionally, illiquidity and high transaction costs pose obstacles to domestic enterprises seeking capital and may push them to explore opportunities in foreign markets (Mishra, Mishra & Mishra, (1900) Magaji, Abubakar & Tahir (2016)

These challenges are not limited to Nigeria but are prevalent globally. While the United States and the United Kingdom dominate capital market investments, there is increasing attention on the development of capital markets in Asia, which is home to many emerging economies experiencing rapid growth. Capital markets play a crucial role in long-term economic growth and development in both Europe and Asia, serving a wide range of clients, including governments, corporate bodies, and individuals within and outside the country (Al-Faki, Adoms, Yua, Okaro, & Ogbonna).

While there have been studies investigating the impact of the capital market on economic growth, such as Erasmus, (2016), Okoye,Modebe, Taiwo & Okorie, (2016), Osakwe & Ananwude, (2017), Abdullahi & Fakunmoju,(2019), Augustine & Okon, (2019) and Mamudu & Gayovwi, (2020), these studies have neglected to examine how the capital market influences gross fixed capital formation. Gross fixed capital formation is one of the key drivers of economic growth in Nigeria, and it is closely associated with capital market activities. The capital market serves as a major component for raising capital and facilitating economic development. In summary, the influence of market capitalization on capital formation in Nigeria is a significant area of study that deserves attention, as it plays a crucial role in the country's economic growth and development.

REVIEW OF RELATED LITERATURE

Capital Market

The capital market is a vital platform that offers a diverse range of financial instruments enabling economic agents to pool, price, and exchange risk. It serves as a marketplace for the buying and selling of medium and long-term finance. According to Al-Faki (2009), the capital market comprises specialized financial institutions, mechanisms, processes, and infrastructure that facilitate the convergence of suppliers and users of medium to long-term capital for investment in socio-economic development projects. Essentially, the capital market provides the necessary facilities for the transfer of medium and long-term funds to various economic units.

Jhingan (2004) defines the capital market as a market dealing with long-term loans, supplying industries with fixed and working capital, as well as financing the medium and long-term borrowings of central, state, and local governments. In essence, the capital market encompasses a complex network of institutions and mechanisms through which medium and long-term funds are pooled and made available to individual businesses and governments.

Capital market deepness refers to the level of development in a financial system, particularly regarding the integration of the capital market with international financial institutions. This deepening is also associated with capital market activities such as market capitalization, trading, and turnover of securities (Torre, Gozzi, and Schmukler). The Central Bank of Nigeria (2007) defines capital formation as the overall change in the value of fixed assets in the economy, including both the replacement and addition of other stocks. It signifies an increase in the fixed capital stocks formed in the economy. Governments, through their autonomous investment, influence the direction of other investments by crowding in desired

investments.

The function of the capital market, theoretically, involves providing long-term debt and equity financing through the issuance of bonds, debentures, and shares for investment in long-term productive assets. It also aims to achieve efficient allocation of capital through competitive price mechanisms, encourage broader ownership of productive assets, and mobilize savings and channel them towards productive investments.

Government Securities

Government securities are debt instruments of a sovereign government. They sell these products to finance day-to-day governmental operations and provide funding for special infrastructure and military projects. These investments work in much the same way as a corporate debt issue. Corporations issue bonds as a way to gain capital for buying equipment, funding expansion, and paying off other debt. By issuing debt, governments can avoid hiking taxes or cutting other areas of spending in the budget each time they need additional funds for a project.

Corporate bonds

A corporate bond is a bond issued by a corporation in order to raise financing for a variety of reasons such as to ongoing operations, or to expand business. The term is usually applied to longer-term debt instruments, with maturity of at least one year.

All Shares Price Index

The All-Share Index tracks the general market movement of all listed equities on Nigerian Exchange, including those listed on the Growth Board, regardless of capitalization.

Equities

Equity, typically referred to as shareholders' equity (or owners' equity for privately held companies), represents the amount of money that would be returned to a company's shareholders if all of the assets were liquidated and all of the company's debt was paid off in the case of liquidation. In the case of acquisition, it is the value of company sales minus any liabilities owed by the company not transferred with the sale.

Theoretical Review

Financial intermediation theory (Ngerebo) establishes a relationship between the stock market and capital formation. It suggests that the capital market should serve as a mechanism for mobilizing and transferring savings from fund-owners to investments that promise better and higher returns. Since direct regulation and quantification of capital market borrowing activities can be challenging, financial institutions are expected to mediate between fund owners and users in an impersonal but formal manner, utilizing marketable securities traded on exchanges such as the Nigerian Stock Exchange (Gorton & Winton).

Empirical Review

Ngerebo-a and Torbira (2014) conducted a study on the role of capital operations in capital formation in Nigeria from 1980 to an unspecified year. The test results indicated that the data achieved stationarity after first differencing at order 1(1), as cited. The analysis revealed a

positive and significant long-run relationship between capital market activities and gross fixed capital formation in Nigeria. The Granger Causality Test results indicated a unidirectional causality flowing from Gross Fixed Capital Formation (GFCF) to market capitalization. This suggests that an increase in GFCF could raise the value of listed securities, boost firm value, increase the prices of listed equities, and expand the size of the country's capital market. Taiwo, Alaka and Afieroho (2016) evaluated the contribution of the capital market to the growth of Nigeria's economy. They estimated an error correction model for economic growth in Nigeria using Vector Error Correction techniques on annual time series data from 1981 to 2014. The data were subjected to the Phillip Perron Unit Root Test at the level and first difference. The results showed that all the variables were stationary at first differencing at a one percent significance level. The normalized co-integrated series further revealed that market capitalization rate, total value of listed securities, labor force participation rate, accumulated savings, and capital formation were significant macroeconomic determinants of economic growth in Nigeria, as cited.

Osakwe and Ananwude (2017) conducted a study on the long-run relationship between stock market development and economic growth in Nigeria from 1981 to 2015. They used market capitalization ratio and turnover ratio to measure the depth of Nigeria's stock market development, while the growth rate of real gross domestic product represented economic growth. The data were analyzed using the Autoregressive Distributive Lag (ARDL) model. The analysis revealed that the depth of development in Nigeria's stock market had a positive but insignificant relationship with economic growth in both the short and long run. The Granger causality analysis indicated that the Nigerian stock market was not effective in driving economic growth. Economic growth in Nigeria appeared to be independent of stock market operations. Addressing inhibiting factors such as infrastructural inadequacy and weak institutional and regulatory frameworks is crucial for the stock market to fulfill its objective of capital mobilization for economic growth, as mentioned in the citation. Inimino, Bosco, and Abuo (2018) examined the relationship between the capital market and economic growth in Nigeria from 1986 to 2016. The main objective of the study was to assess the impact of the capital market on economic growth in Nigeria. The researchers utilized the Augmented Dickey-Fuller (ADF) test and the Auto-Regressive Distributed Lag (ARDL) model as the main analytical tools. The ADF unit test results indicated stationarity of the variables at order zero and one, satisfying the requirement to employ the ARDL Bounds testing approach. The ARDL Bounds test confirmed the existence of a long-run relationship among the variables. Additionally, the results demonstrated that market capitalization had positive and significant effects on economic growth in both the short and long run. The number of deals was also found to have a positive impact on economic growth, as mentioned in the citation.

Araoye, Ajayi, and Aruwaji (2018) examine the impact of the Nigerian Stock market development on the nation's economic growth from 1985 to 2014. The economic growth was proxy by the GDP while the stock market variables considered included; market capitalization and market turnover ratio as proxy for stock market development in terms of size and liquidity. The study utilizes the Johansson's co integration test in establishing if along run relationship does exist between stock market development and economic growth in Nigeria. The empirical results suggest that the stock market is significant in determining economic growth in Nigeria using the error correlation model and it was found that the stock market has impacted insignificantly on the economic growth.

Mamudu and Gayovwi (2020) examine the impact of capital market on economic growth in

Nigeria with the application of the Phillips-Perron test statistics, the Johansen Co integration techniques, Pair wise Granger Causality techniques and the Error Correction Methodology on a log linear multiple regression framework. The Phillips-Perron test statistics results showed that all the selected economic and capital market variables (In RGDP, In MCAP, In TVT and In ASI) were stationary at first difference. In other words, they were found to be stationary at order one I (1), while the Johansen unrestricted co integration rank test results showed that there exists at least four and one co integrating equations respectively as both the Trace and Max-Eigen statistics revealed long run relationship between In RGDP, In MCAP, In TVT and In ASI. The empirical results showed that the entire explanatory variables of the economic and capital market met their expected signs except the all share index with a negative sign. The results also revealed that the log of market capitalization (In MCAP) and the log of total value of transaction traded (In TVT) had positive impact on the log of real gross domestic product (In RGDP) in Nigeria.

Gap in Literature

The literature review reveals that significant research has been conducted on the relationship between market capitalization and capital formation in Nigeria. Most of these studies focused the positive effect of market capitalization and how it affects capital formation. However, little or no research has been conducted on investigating the impact of market capitalization on capital formation with regards to the variables used in this work that is, corporate bonds, government securities, equities and all share price index as it is in this study. By addressing this research gap, the study will provide valuable insights into the dynamics of market capitalization, capital formation, and their relationship with the identified independent variables.

METHODOLOGY

In order to investigate the relationship between market capitalization and capital formation in Nigeria, the study adopted a quasi- experimental research design. The study adopted a secondary source of data, from the CBN statistical bulletin and World Bank data base. 1990-2021. The research design encompasses the structure and strategy for investigating the relationship between the variables of the study. This section focuses on the study's design, data sources, analysis methods, and model specification. Ordinary Least Square of analysis is used. The main variables used for the empirical analysis in this study are measures of capital market development and a measure of capital formation. Gross Capital Formation is the dependent variable denoted as GFCF. This measure of capital formation is in line with other studies in the financial development literature (Kraay, 1998; & Misati and Nyamongo, 2012). In order to capture stock market Capitalization, the study employed market capitalization (MC), All Shares price index (ASI), government securities (GS), Corporate bonds (CB), and equities (EQ) as independent variables.

Model Specification

To understand the impact of stock market capitalization on capital formation in the Nigerian economy, we specify a model that states Capital formation depends on Market Capitalization. Based on the above discussion, the empirical model takes the form below:

$GFCF_t = \beta_1 + \beta_2 ASI_t + + \beta_3 GS_t + \beta_4 CB_t + \beta_5 EQ_t + u_t$ (1)

Where:

GFCF: capital formation,

ASI: all share price index

GS: government securities

CB: corporate bonds

EQ: equities

RESULTS AND DISCUSSION OF FINDINGS

Table 1: Unit root test

Variable	ADF stat	MacKinnon 1%	5%	10%	Order of int
	ADF at difference				
GFCF	-5.125111	-3.711457	-2.981038	-2.629906	1(I)
GS	-5.185186	-3.661661	-2.960411	-2.619160	1(I)
EQ	-5.381225	-3.679322	-2.967767	-2.622989	1(I)
CB	-4.930817	-3.689194	-2.971853	-2.625121	1(I)
ASPI	-8.114895	-3.689194	-2.971853	-2.625121	1(I)

Source: E-view output

Table 1 presents the results of ADF test for Unit root; it can be found that all the time series variables are stationary at first difference. Not having a stationarity time series data indicates not having a short run relationship among the individual time series data, this result is expected since most time series variables are known to exhibit such behavior.

Table 2. Result of Johansson Co integration Test

Series: GFCF GS EQ CB ASPI

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.744282	101.2551	69.81889	0.0000
At most 1 *	0.649442	60.34471	47.85613	0.0022
At most 2	0.357570	28.89786	29.79707	0.0632
At most 3 *	0.316407	15.62294	15.49471	0.0478
At most 4 *	0.130966	4.211182	3.841466	0.0401

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.744282	40.91041	33.87687	0.0062
At most 1 *	0.649442	31.44685	27.58434	0.0151
At most 2	0.357570	13.27492	21.13162	0.4273
At most 3	0.316407	11.41176	14.26460	0.1347
At most 4 *	0.130966	4.211182	3.841466	0.0401

Source: E-view output

From the result of table 2, the ADF test statistics is greater than the 5% critical valuein absolute terms. This implies that the residuals are stationary (i.e. the variables are co-integrated or that the linear influence of the independent variables cancels out). Therefore, there is a long run relationship between the variables.

Table 3 Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
GS does not Granger Cause GFCF	30	1.58177	0.2255
GFCF does not Granger Cause GS		14.0090	0.0000
EQ does not Granger Cause GFCF	30	1.68694	0.2055
GFCF does not Granger Cause EQ		9.45867	0.0009
CB does not Granger Cause GFCF	30	0.81410	0.4544
GFCF does not Granger Cause CB		2.03750	0.1514
ASPI does not Granger Cause GFCF	30	1.76521	0.1918
GFCF does not Granger Cause ASPI		2.13433	0.1394

Source: E-view output

Table 3 presents the granger causality test on the effect of market capitalization and gross fixed capital formation. The results found that unidirectional causality from gross fixed capital formation to government securities and from gross fixed capital formation to equities.

Table 4:VAR Lag Order Selection Criteria
Endogenous variables: GFCF GS EQ CB ASPI

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1325.515	NA	4.88e+33	91.75966	91.99540	91.83349
1	-1213.911	177.0277	1.28e+31	85.78694	87.20138	86.22993
2	-1175.980	47.08584	6.22e+30	84.89520	87.48834	85.70734
		134.6622				77.44200
3	-1025.780	*	1.81e+27*	76.26071*	80.03256*	*

Source: E-view output

The test for the optimal lag length shows that all the test criteria (SIC, LR, HQ, AIC, and FPE) selected one lag length. Further tests using higher lags did not yield any different result. Specifying lag lengths lower than five resulted in the test criteria selecting lag one as the optimal lag length. Due to the sample size of the data used for analysis, we adopted the selection made by all the test criteria of one-lag length.

Table 5: Error Correction model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GFCF(-1))	0.086796	0.638606	0.135915	0.8943
D(GFCF(-2))	-0.299507	0.579756	-0.516609	0.6157
D(GFCF(-3))	-1.144605	1.710692	-0.669089	0.5172
D(GS(-1))	4.342102	2.554377	2.699867	0.0172
D(GS(-2))	0.370414	1.662494	0.222806	0.8278
D(GS(-3))	2.094436	1.422678	3.472178	0.0090
D(EQ(-1))	0.568832	0.548944	1.036230	0.3223
D(EQ(-2))	-0.813910	0.721211	-1.128532	0.2831
D(EQ(-3))	-3.076072	1.213685	-2.534490	0.0278
D(CB(-1))	0.467771	1.218039	0.384037	0.7083
D(CB(-2))	-0.386835	0.977673	-0.395670	0.6999
D(CB(-3))	1.096129	1.198480	0.914600	0.3800
D(ASPI(-1))	-0.348399	0.098393	-3.540891	0.0046
D(ASPI(-2))	0.047257	0.117619	0.401783	0.6955
D(ASPI(-3))	0.381942	0.140893	2.710869	0.0203
C	1026.893	555.0420	1.850118	0.0913
ECM(-1)	0.105883	0.513178	0.206328	0.8403
R-squared	0.968318	Mean dependent var		2061.957
Adjusted R-squared	0.922236	S.D. dependent var		3896.059
S.E. of regression	1086.461	Akaike info criterion		17.09921
Sum squared resid	12984365	Schwarz criterion		17.90805
Log likelihood	-222.3890	Hannan-Quinn criter.		17.34648
F-statistic	21.01285	Durbin-Watson stat		1.513089
Prob(F-statistic)	0.000006			

Source: E-view output

The equilibrium structure of the parsimonious error correction model presented in table (4.7) is confirmed by the sign of the error correction term (ECM-1). The error correction term shows a significant adjustment of about 10% in absolute term from short run disequilibrium to long run equilibrium while the model's parsimony is reflected in the Akaike AIC and Schwarz SC criterion as well as the adjusted r-squares among others. It can also be observed that the value of the Durbin-Watson statistic indicated that the model is free of first order positive serial correlation problem since the DW value of 1.513089is above the tabulated value of 1.900. The F- statistic was also significant and the explanatory power of the explanatory variables was equally very high indicating a strong joint influence between the dependent and the independent variables. The parsimonious variables explained about 92.2% variations in the dependent variables. From lag one, the study found that government securities, equities and corporate bond have positive effect on Nigeria gross fixed capital formation while all share price index have negative effect on gross fixed capital formation.

Discussion of findings

From Table 5, it can be observed that previous year of the variables are statistically significant, meaning that previous year's activities of the variables predict present year's effects on capital formation in Nigeria. It is worthy to note that the series in the model have short run significant impact on the Nigeria's gross fixed capital formation, that market capitalization indicators have significant effect on the gross fixed capital formation in

Nigeria. However, series like government securities, corporate bonds and value of equity traded have positive effect on gross fixed capital formation. This is in line with the a-priori expectation of the study and in line with existing theories such as MacKinnon and Shaw theories. The findings also validate reforms in the Nigeria capital market such as internationalization of the capital market. however the study found that all share price index impact negatively to gross fixed capital formation, the negative effect on all share price index on gross fixed capital formation contradict the expectations of the study and not in line with theories, the negative effect of all share price index can be traced to macroeconomic instability such as high level of inflation. The findings are in line with the findings of Araoye, Ajayi, and Aruwaji (2018) that the stock market is significant in determining economic growth in Nigeria using the error correlation model and it was found that the stock market has impacted insignificantly on the economic growth, Augustine &Okon (2019) whose study found positive correlation and conform to prior expectation and significantly influenced economic growth. Inflation revealed negative correlation and conformed to a-priori expectation but was insignificant on the economic growth, which makes it not determinant in economic growth in Nigeria and the findings of Mamudu and Gayovwi (2020) that the log of market capitalization (In MCAP) and the log of total value of transaction traded (In TVT) had positive impact on the log of real gross domestic product (In RGDP) in Nigeria.

CONCLUSION AND RECOMMENDATIONS

Conclusion

This study was to establish the effect of market capitalization on gross fixed capital formation. Secondary Data were collected from Central Bank and multiple regression analysis was used in the data analysis. From the findings on the Adjusted R squared, the study found that there was variation of 92.2 percent on Nigeria gross fixed capital formation of the country due to changes in market capitalization variables. The study further revealed that there was a strong positive relationship between, all share price index, government securities and gross fixed capital formation while other variables are not statistically significant. The study found that all the variables have positive effect on gross fixed capital formation except all share price index. The study recommends the need to deepen the operational efficiency of the Nigeria capital market by ensuring more firms are allow to listed in the stock exchange, this have the capacity to increase the market capitalization to enhance gross fixed capital formation amongst other recommendations. From the findings, the study concluded that government securities have positive and significant effect on Nigeria gross fixed capital formation, traded equities have positive but no significant effect on Nigeria gross fixed capital formation. Corporate bonds have positive but no significant effect on Nigeria gross fixed capital formation while all share price index have negative and significant effect on gross fixed capital formation in Nigeria.

Recommendations

i. There is need to deepen the operational efficiency of the Nigeria capital market by ensuring more firms are allow to listed in the stock exchange, this have the capacity to increase the market capitalization to enhance gross fixed capital formation.
ii. Policies that effect negative corporate bonds in the Nigeria stock market should be discouraged and investment friendly policies should enacted to increase number of corporate bonds in the stock market.

iii.   More of government securities should be traded in the stock market to enhance the growth of Nigeria gross fixed capital formation.

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