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Impact of Infrastructural Expenditure on Stock Market Development in Nigeria (1980 – 2014)

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Abstract: This study examined the impact of infrastructural expenditure on stock market development in Nigeria for the period 1980 to 2014. The study employed the Ordinary Least Squared (OLS) technique. From the regression estimate, the study observed that infrastructural expenditure has a positive but insignificant effect on stock market development. Thus, the study concluded that infrastructural expenditure has not contributed significantly to the growth of stock market in Nigeria. Based on the conclusion, this study recommended that there is the need for government to increase budgetary allocation to infrastructural sector and also ensure appropriate maintenance of existing infrastructural facilities. This is important to enhance production activities of the real sector and thereby promote the growth of the stock market.
Keywords: Infrastructure, stock market development, OLS, Nigeria

INTRODUCTION

Utmost importance is accorded to infrastructure as the foundation for growth and development in Africa. The structural gap in African infrastructure is considered a serious handicap to economic growth. At the macro-level, it is recognized that infrastructure investment enhances private sector activities by lowering the cost of production and opening new markets; and presenting new production opportunities[1]. Investments in roads reduce transport costs while ports and other logistics infrastructure reduce the cost associated with trade, all of which improve the competitiveness of firms[2].

In less developed countries, infrastructure deficit has been a perennial challenge as evident in the slow growth of the power sector (in terms of inadequate power generation), lack of portable water, dilapidated roads and so on. The failure to provide appropriate infrastructure services may creates bottlenecks hampering the smooth functioning of various economic activities and hence constraint opportunities for promoting various business enterprises[3]. Acknowledging the constraints posed by infrastructural shortage, most government in developed countries have been investing in the provision of infrastructural facilities capable of promoting business activities. However, it is uncertain if such infrastructural investment has influenced stock market development. Although a large number of Nigerians studies have examined issues on infrastructural development and on stock market development separately, these studies have failed to examine the relationship between infrastructural expenditures and stock market development. Studies on infrastructural development focused on the impact of infrastructures on economic growth[4-6] while those on stock market focus on the role of stock market development in promoting economic growth in Nigeria[7-10].These studies did not consider the relationship between infrastructures expenditure and stock market development in Nigeria. Against the foregoing, this study seeks to fill the empirical gap in knowledge by examining the relationship between infrastructural expenditure and stock market development in Nigeria for the period 1980 to 2014.

LITERATURE REVIEW

Onakoya *et al* [11] investigated the impact of infrastructure on stock market development and economic growth in Nigeria which covered 40 years (1970 to 2010). The study utilised three-stage least squares technique to capture the transmission channel through which infrastructure promotes growth. The findings of the study showed that infrastructural investment has a significant impact on output of the economy directly through its industrial output and indirectly through the output of other sectors such as manufacturing, oil and other services. The agricultural sector was however not affected by infrastructure. The study also showed a bi-directional causal relationship between infrastructure and economic growth in Nigeria. The study recommended increased investment in infrastructure. The study further recommended the financing options for closing Nigeria's infrastructure

gaps should focus on broadening the sources of finance and a better allocation of public resources in this study, the government should intensify the utilisation of the public-private partnership (PPP) framework.

Adefeso *et al*[9] examined the long run and causal relationship between both stock market development and economic growth in Nigeria using annual data from 1980 to 2010. Vector Error Correlation Model (VECM) and Co-integration technique of analysis were employed to analyse the data and draw policy inferences. The study found that stock market development as well as banking activity was co-integrated with economic growth in Nigeria. That is, there is a long run relationship among these variables in Nigeria. The result from VECM showed that economic growth granger causes both stock market development and banking activity in Nigeria. The study therefore, strongly recommends that policy makers should lay emphasis on the economic growth through the appropriate regulatory and macroeconomic policies to remove all constraints to the acceleration of the sustainability of economic growth and development in Nigeria.

Onakoya [10] examined the relative contributions of stock market volatility on economic growth in Nigeria for the periods of 1980 to 2010 using Exponential Generalised Autoregressive Conditional Heteroskedasticity (EGARCH). The study revealed that the volatility shock was quite persistent in Nigeria and this might distort growth of the economy.

Akinyosoye [12] investigated a macroeconomic outlook on the benefits of a strong infrastructure base to the Nigerian economy. The study provided an informed perspective on the economic impact infrastructure development has on nation building. Though infrastructure linkage to an economy may come in a multiple of ways, it is often known to be complex and sometimes convoluted, creating both positive and negative add-on effects, due to the large flow of expenditure.

Herranz-Loncán[13] analysed the impact of infrastructure investment on Spanish economic growth from 1850 to 1935. Using new infrastructure data and VAR techniques, the study showed that the growth impact of local scope infrastructure investment was positive, but returns to investment in large nation-wide networks were not significantly different from zero.

Fedderke *et al* [14]) examined the relationship between infrastructure and economic growth in South Africa. Using Pesaran, Shin and Smith's F-tests, the study identified directions of association between economic infrastructure and economic growth. Also, the study identified long-run relationships from public-sector economic infrastructure investment and fixed capital stock to gross domestic product (GDP), from roads to GDP and from GDP to a range of other types of infrastructure. The study found that the relationship between economic infrastructure and economic growth run in both directions.

Campbell *et al.* [15] observed that stock market volatility has significant predictive power for real GDP growth while Guo [16] showed that the relationship between stock market volatility and economic activity is not fully robust to deserve model specifications.

Rives and Heaney [17] examined the relationship between infrastructure and the level of community economic development. The study observed that infrastructure has a significant, positive determinant of economic performance.

Yartey [18] also examined the institutional and macroeconomic determinants of stock market development using a panel data of 42 emerging economies for the period 1990 to 2004. The study found that macroeconomic factors such as income level, gross domestic investment, banking sector development, private capital flows, and stock market liquidity are important determinants of stock market development in emerging market countries. The results also showed that political risk, law and order, and bureaucratic quality are important determinants of stock market development because they enhance the viability of external finance.

Canning and Pedroni [6] investigated that the long run consequences of infrastructure provision on per capita income in a panel of countries over the period 1950-1992. The study found a great deal of heterogeneity in the results in Nigeria. The results also indicated that infrastructures are provided at the growth maximizing level on average, but are under supplied in some countries and over supplied in others. In contrast, the study found that infrastructure generating capacity is under provided on average. Esfahani and Ramirez [19] developed a structural model of infrastructure and growth that takes account of economic factors that mediate in the infrastructure – Gross Domestic Product (GDP) interactions. This study observed that the contribution of infrastructure services to GDP is substantial and, in general, exceeds the cost of provision of those services. The study also shed light on the factors that shape a country's response to its infrastructure needs and offer policy implications for facilitating the removal of infrastructure inadequacies.

RESEARCH METHODOLOGY

To examine the relationship between infrastructural expenditure and stock market development, this study adopts a modified model by Yartey [18]. This model is specified as:

$$\boldsymbol{Yt} = (\boldsymbol{IF}, \boldsymbol{GDP}, \boldsymbol{MS}, \boldsymbol{INT}) \ldots\ldots\ldots\ldots\ldots\ldots (\mathbf{1})$$

This model can be express in log form as:

$$\log Yt = \alpha + \alpha 1 \log IF + \alpha 2 \log GDP + \alpha 3 \log MS + \alpha 4 \log INT + \epsilon t \ldots\ldots\ldots\ldots\ldots (2)$$

Theoretically, it is expected that an increase in each of the variables in equation (2) would enhance the performance of the stock market. In equation (2), GDP is Gross Domestic Product; MS is broad money supply; IF is Infrastructure expenditure; INT is short term interest rate, Y is stock market development measured by the ration of stock market capitalization to gross domestic product and α is the intercept. The various data are obtained from the central bank of Nigeria statistical bulletin.

REGRESSION ESTIMATE AND INTERPRETATION

With respect to equation (2) on the relationship between infrastructural expenditure and stock market development, the ordinary least square (OLS) result presented in table 1 below showed that the performance of the model is appropriate. The F-statistics is very significant 692.53(0.0000) at 1% suggesting that the model can be used in drawing policy conclusion, making references. Furthermore, the explanatory variables of the model (R-squared (98.9 per cent)) is very high which implied that the explanatory variables in the model explain about 98.9 per cent of the variations in stock market in Nigeria from 1980 to 2014 while remaining 1.1per cent of the variation in stock market was explained by other factors not included in the model.

Table-1: Regression Estimate.

Dependent Variable	Regressors (Variables)	Estimated Co-efficient	Standard Error	t-statistic	Prob.
Y	LIF	0.026942	0.027569	0.977254	0.3368
	LGDP	-0.198154	0.179239	-1.105528	0.2783
	LMS	1.277219	0.053258	23.98183	0.0000
	INT	-0.031685	0.012325	-2.570670	0.0158
	C	-8.668466	1.794198	-4.831388	0.0000
R = 0.989993		Adjusted R = 0.988564			
F-Statistic = 692.5260					
Prob(F-statistic) = 0.000000		D.W. Statistic = 1.838898			

Source: Author's Computation from E-views

In addition to the above, the coefficient of individual variables is examined to determine the relative contribution of each variable to stock market development in Nigeria. The co-efficient of infrastructural expenditure (LIF) was positive (0.03) and insignificant, implying that infrastructure has positive-insignificant effect on stock market development in Nigeria. Also, the co-efficient of money supply (LMS) was positive (1.30) and also significant at one per cent significant level implying that money supply has a positive-significant effect on stock market development in Nigeria and a-one per cent increase in money supply would stimulate economic growth by 127.7 per cent. In contrast to the above, the co-efficient of interest rate (INT) was negative (-0.032) and significant at five percent level, implying that interest rate has a negative and significant effect on stock market development in Nigeria. The co-efficient of gross domestic product (LGDP) was negative (-0.198) and insignificant significant level, implying that gross domestic product has a negative but insignificant effect on stock market development in Nigeria. With respect to the focus of this study, that is, the relationship between infrastructural expenditures and stock market development, the result of this study showed that investment in infrastructure by the government has enhanced the growth of the stock market marginally (about 3%) during the period under study but the impact has been insignificant.

CONCLUSION AND POLICY RECOMMENDATION

An important component for a country's suitable environment for economic growth is a functional infrastructure. This research work made an attempt to look into the impacts of infrastructural expenditure on stock market development in Nigeria for the period 1980 to 2014. The study observed that infrastructural expenditure has a positive but insignificant effect on stock market development. Thus, the study concluded that infrastructural expenditure has not contributed significantly to the growth of stock market in Nigeria. Based on the conclusion, this study recommends as follows: Government should increase the allocation to infrastructural sector and also ensure appropriate maintenance of infrastructural facilities; and government should provide incentives including the funding of development of infrastructures in Nigeria. In order to encourage this, the Nigerian government should consider providing further concessionary fiscal incentives to investors who are willing to commit resources to marginally profitable areas.

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