

# Stock Market and Economic Growth in Nigeria: Evidence from the Demand-Following Hypothesis

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## Abstract

The capital market connects the financial sector with other non-financial sectors of the economy and, in the process, facilitates growth and economic development. Literature abound on the impact of stock market on economic growth however, little literature are available from the demand-following hypothesis which claims that it is the growth of the economy that causes increased demand for financial services which, in turn, leads to the development of financial markets. It is against this background that we examined the impact of stock market development on economic growth from the demand-following arguments from the period 1996-2010. Employing the Ordinary Least Square (OLS) regression, we found that economic growth has positive and non-significant impact on market capitalization ratio and turnover ratio of the Nigerian stock exchange but had a negative on the Nigerian stock market value traded ratio. Our study thus recommends an increased effort by the Nigerian government to grow the economy through rapid industrialization, provision of basic amenities such as electricity, roads, dams etc as this will in turn lead to the development of the financial sector.

**Keywords:** Stock Market. Economic Growth, Demand-Following Hypothesis

## 1.0 Introduction

The capital market connects the financial sector with the real sector of the economy and, in the process, facilitates real sector growth and economic development. The fundamental channels through which capital market connect to economic growth can be outlined as follows: capital market increases the proportion of long-term savings (pensions, funeral covers, etc) that is channeled to long-term investment; capital market enables contractual savings industry (pension and provident funds, insurance companies, medical aid schemes, collective investment schemes, etc) to mobilise long-term savings from individuals/households and channel them into long-term investments. It fulfills the transfer function of current purchasing power, in monetary form, from surplus sectors to deficit sectors, in exchange for reimbursing a greater purchasing power in the future. In this way, capital market enables corporations raise funds to finance their investment in real assets.

Most of the research works on stock market development and economic growth have been based on the supply-leading hypothesis and few on the demand-following hypothesis. The supply- leading hypotheses claims a causal relationship from financial development to economic growth by saying that intentional creation and development of financial institutions and markets would increase the supply of financial services and, thus, lead to economic growth (see, King and Levine (1993a,b), Levine and Zervos (1998), Demirguc and Maksimovic (1996)). Little literature are available on the demand-following hypothesis which claims that it is the growth of the economy that causes increased demand for financial services which, in turn, leads to the development of financial markets (see Robinson, 1952; Lucas, 1988). Therefore, this study seeks to fill an important gap by exploring the impact of stock market development on economic growth from the demand-following arguments that, it is the growth of the Nigerian economy that has promoted stock market development hence a test of reversed causation will be employed in this study.

The remainder of this paper is organized as follows. Section two review related literature in this area of finance. Section three contains our methodology while section four presents our data and analysis of results. Finally, in section five, we conclude and recommends.

## 2.0 Review of Related Literature

Most studies on the capital market and economic grow have tried to examine the nature of the causality between stock market development and economic growth. These studies, some of which are captured in Yartey (2008), include: Thornton (1995), Luintel and Khan (1999), Rousseau and Wachtel (2000), Demetriades and Hussain (1996), and Neusser and Kugler (1998). While some researchers have argued that economic activities in a country constitute the key drivers of stock market development (Yartey, 2008). Of the empirical evidences backing-up both claims, no sharp demarcation yet exists between developments in the financial markets, in general, and national or regional economic development. The whole controversy boils down to the paradox of “the egg and the hen, which is older?”

Guha Deb and Mukherjee (2008), posit that the growing importance of stock markets in developing countries around the world over the last few decades has shifted the focus of researchers to explore the relationship between stock market development and economic growth. The motivation according to them is derived primarily from the obvious policy implications of the findings of such studies for the developing economies.

Oskooe (2010), was of the view that in spite of significant development in Iran’s stock market as an emerging stock market, there has not been specific research on the causality between the stock prices and economic growth. The findings imply the causal link between economic growth and stock price fluctuations in the long run, as well as bilateral (bidirectional?) causality running between share prices and economic growth in the short run and concluded that, it can be inferred that the level of real economic activity is the main factor in the movement of stock prices in the long run and stock market plays a role as a leading economic indicator of future economic growth in Iran in the short run (Oskooe, 2010).

Meltzer (1969) and Stein (1970) observe, only countries with high per capita incomes can experience rapid growth in financial assets. Such countries are none other than the developed countries. But what is crucial here is what constitutes the financial assets that wealth-holders must have as a result of high per capita income. It is important to note that if the increase in the supply of financial assets is small, it means that financial deepening in the economy is, most likely, to be shallow; but if the ratio is big, it means that financial deepening is likely to be high. Developed economies are characterized by high financial deepening, meaning that the financial sector in such countries has had significant growth and improvement, which has, in turn, led to the growth and development of the entire economy.

Guiso, Sapienza and Zingales (2003), on their part, study the effects of financial development within Italy which has been unified from both political and regulatory point of view for some 140 years. They found that, in the most financially developed region, per capita GDP grows 2% per annum more than in the least financially developed one. Also, they show that the odd of an individual starting a business increases by 5.6 percent if he moves from the least financially developed region to the most financially developed one; and the individual is able to do so at a younger age. As a result, on average, entrepreneurs were 5 years younger in the most financially developed region than in the least developed one.

Aziakpono (2007) posits that the increasing international interest in economic integration and monetary union has spawned new regional initiatives in every continent. As a result, global financial markets are becoming increasingly integrated. The evidence from their findings indicates that for the smaller countries of the SACU with less developed financial institutions to derive the optimal gains from financial intermediation, they would need to take steps to strengthen their weak financial system and resolve the institutional and structural problems in their economies. An obvious lesson for countries contemplating forming or entering economic integration, in particular a monetary union, is that the development of their financial system and addressing other institutional and structural problems will be a necessary precondition for deriving optimal gains from such integration.

Robinson (1952) argues that economic growth promotes financial development. Most of the studies conducted to test

this relationship used bank-based measures of financial development (King and Levine, 1993a, b, c, 1994), but recent studies have shifted emphasis to stock market indicators (Levine and Zervos, 1996; 1998; Demirguc-Kunt and Levine, 1996a). These studies use cross-country regression to establish a causal relationship between stock market development and economic growth. Cross-country regression has, however, been criticized by Arestis and Demetriades (1993) and Renelt and Levine (1991) for not addressing the question of causality in a satisfactory manner because of differences in institutional structures across countries.

Robinson (1952) again argues that financial development follows growth, and articulated this causality argument by asserting that “where enterprise leads finance follows”. Robinson (1952) and other followers of Keynes (1936), would argue that although growth may be constrained by credit creation in less developed financial systems, in more sophisticated systems, finance is viewed as endogenous responding to demand requirements. This line of argument suggests that the more developed a financial system is, the higher the likelihood of growth- causing finance (Chick 1983).

The stock market is supposed to ensure, through the takeover mechanism, that past investments are also most efficiently used (Ujunwa and Salami, 2010). Theoretically, the threat of takeover is expected to provide management with an incentive to maximize firm value. The presumption is that, if management does not maximize firm value, another economic agent may take control of the firm, replace management and reap the gains from the more efficient form. Thus, stock market promotes corporate control, by providing financial discipline, which is expected to provide the best guarantee of efficiency in the use of assets.

Mayer (1988) argues that even large stock markets are unimportant source of corporate finance. Stiglitz (1985) further posits that stock market liquidity will not enhance incentives for acquiring information about firms or exerting corporate governance. Finally, the analyses of Morck, et al (1990a, 1990b) suggest that stock market development can hurt economic growth by easing counter-productive corporate takeover. Besides stock market size, liquidity, integration and excess liquidity can hinder investment, and therefore impede growth.

### 3.0 Methodology

Consistent with previous researches conducted in this area of finance which are time series analysis-based, the nature of data for this research are secondary. The secondary data for this study were extracted from the Nigerian Stock Exchange Annual Statement and Accounts from 1996-2010. We used three (3) indicators of stock market growth in this study, these are; market capitalization ratio, turnover ratio and values of shares traded ratio as dependent variables while gross domestic product growth rate was adopted as the independent variable.

Market capitalization ratio measure equals market capitalization divided by GDP. The reason behind this measure is that the overall market size is positively correlated with the ability market to mobilize capital and diversify risk on economy wide basis (Levine and Zervos, 1996). Therefore, our first hypothesis states that economic growth does not have positive significant impact on stock market capitalization rate in Nigeria and was be represented by the equation:

$$SMCR = a + b GDPGR + \mu \dots\dots\dots (i)$$

Turnover ratio measures liquidity of the market and high turnover ratio is an indication of low transaction cost in the stock market. A small but active market will have low capitalization but high turnover. Turnover also complements total value traded ratio. In this study, the turnover ratio will be used in line with the works of Demirguc-Kunt and Levine (1996) and Levine and Zervos (1996), and we measured the turnover ratio by total value of shares traded divided by the stock market capitalization. Again, our second hypothesis states that economic growth does not have positive significant impact on stock market turnover ratio in Nigeria and was represented by the equation:

$$SMTR = a + b GDPGR + \mu \dots\dots\dots (ii)$$

The value traded ratio complements the market capitalization ratio. It is a measure which equals the total value of

shares traded divided by the Gross domestic product of the economy. This indicator of growth indicates the liquidity observed in the market. In this research we used this ratio to compliment the market capitalization rate as a measure of growth of the capital market in line with the work of Donwa and Odia (2010). Lastly, our hypothesis states that economic growth does not have positive significant impact on stock market value traded ratio in Nigeria - will be represented by the equation:

$$SMVTR = a + b GDPGR + \mu \dots\dots\dots (iii)$$

Our objective in this study is to examine the relationship between economic growth and stock market growth in Nigeria, and the extent to which the former impacts the latter in Nigeria. To achieve this objective, the Least Square (LS) regression was used to test hypothesis 1, 2 and 3

#### 4.0 Presentation and Analysis of Data

##### 4.1 Presentation of Data

The treated model data are presented in table 4.1

Table 4.1 Computed Model Ratio Proxies

Year	GDPGR	SMCR	SMTR	SMVTR
1996	4.3844	0.97295	0.02442	0.023761
1997	2.8178	0.93337	0.03665	0.034204
1998	2.9361	0.84467	0.05168	0.043652
1999	0.416	0.96097	0.04691	0.045076
2000	5.444	1.43478	0.05961	0.085525
2001	8.45	1.85577	0.08707	0.161582
2002	21.347	1.76568	0.07767	0.137133
2003	10.233	2.8465	0.08858	0.252135
2004	10.479	4.00416	0.1069	0.428033
2005	6.5119	5.16095	0.09066	0.467914
2006	6.031	0.85949	0.91828	0.789252
2007	6.4498	20.9611	0.08094	1.696521
2008	6.4072	14.1004	0.17645	2.488022
2009	6.2322	9.80836	0.21451	2.10401
2010	7.9	9.28969	0.2282	2.119902

Source: Authors' Computation

From table 4.1 above, the ratio values of the model proxies indicates mix variations from 1996 to 2010. For the gross domestic product growth rate, the Nigerian economy grew by 4.38% in 1996. In 1997, it dropped to 2.82% and slightly rose to 2.94% in 1998 and fell by 0.42% in 1999. The drop in 1999 could be attributed to the change from military to democratic rule. The major focus of the Nigerian government in 1999 was to ensure smooth transition from military to democratic governance. In 2000, the economy grew by 5.44% and continued growing to a record high in 2002 where the economy grew to 21.35%. In 2003 and 2004, the economy grew on average of 10% and from 2005 to 2009; the average growth rate of the Nigerian economy is 6.3%. In 2010, however, it picked up slightly to 7.9. Overall, the Nigerian economy from 1996 to 2010 have been growing though on a slow and steady pace

A cursory look at table indicates that the stock market capitalization ratio in 1996 was 0.97basis point. This measure reveals that the overall market size is positively correlated with the ability to mobilize capital and diversify risk on economy wide basis. In 1997, the market capitalization ratio of the Nigerian Stock Exchange fell to 0.93basis point and further to 0.84basis point in 1998. The ratio rose to 0.96basis point in 1999 and continued it increase to 2005

where the market capitalization was 5.16basis point. The market capitalization ratio fell to 0.86basis point in 2006 but rose sharply to 20.96basis point in 2007. From 2008 to 2010, the market capitalization ratio has been on a downward trend as the ratio was 14.10, 9.81 and 9.29basis points respectively.

The market turnover ratio the liquidity of the market and high turnover ratio is an indication of low transaction cost in the stock market and the ratio complements market capitalization. From table 4.1, the Nigerian Stock Exchange ratio has hovered around 0.1points for the period. The highest ratio was recorded in 2006 where the turnover ratio was 0.92points. This was followed in 2010, 2009 an 2008 in that order (0.23, 0.21 and 0.18points respectively). The lowest recorded market turnover ratio was in 1996 (0.02points), 1997 (0.04points) and 1999 (0.05points) in that order. Overall, the market turnover ratio has fairly been on the increase.

The value traded ratio complements the market capitalization ratio. It is a measure which equals the total value of shares traded divided by the Gross domestic product of the economy. This indicator of growth indicates the liquidity observed in the market. From table 4.1 the market value traded ratio of the Nigerian Stock Exchange has shown an increase in the liquidity level. From 1996 to 2006, the liquidity level as indicated by the value traded ratio of the market was between 0.02points in 2006 to 0.78points in 2006. From 2007 to 2010, the value traded ratio was 1.70, 2.49, 2.10 and 2.12points respectively indicating an increase in liquidity levels of the market.

#### 4.2 Analysis of Results

Table 4.2 presents the regression results of hypothesis one

Table 4.2 Regression Results OF Hypothesis One

Dependent Variable: GDPGR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SMCR	0.831102	0.753523	1.102955	0.2959
C	359.0371	261.6803	1.372045	0.2000
R-squared	0.953872	Mean dependent var		7.069360
Adjusted R-squared	0.884579	S.D. dependent var		4.783058
S.E. of regression	5.205802	Akaike info criterion		6.398626
Sum squared resid	271.0038	Schwarz criterion		6.634643
Log likelihood	-42.98970	F-statistic		0.454636
Durbin-Watson stat	1.384834	Prob(F-statistic)		0.767355

Source: Researchers' E-view Results

$$\text{Model Equation GDPGR} = 359.073 + 0.831\text{SMCR} + 0.753$$

From the above table, the result indicates that economic growth has positive and non-significant impact on market capitalization ratio of the Nigerian Stock Exchange (coefficient of stock market capitalization =0.831, t-value = 1.103). The result indicates that a one percent (1%) increase in economic growth will bring about a 0.831% in market capitalization in the Nigerian Stock Exchange. The Coefficient of determination (R<sup>2</sup>) is 95.4%. This is very high indicating that the variation in the dependent variable (gross domestic product) was 95.4% captured by changes in the independent variable (market capitalization). The variation was properly adjusted by the adjusted R<sup>2</sup> OF 88.46%. The Durbin Watson (d test statistic) was 1.385 which is less than the rule of thumb value of 2 indicating that there was no sign of autocorrelation.

Table 4.2 presents the regression results of hypothesis two

Table 4.2 Regression Results of Hypothesis Two

Dependent Variable: GDPGR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SMTR	9.825357	10.34220	0.950026	0.3645
C	359.0371	261.6803	1.372045	0.2000
R-squared	0.953872	Mean dependent var		7.069360
Adjusted R-squared	-0.884579	S.D. dependent var		4.783058
S.E. of regression	5.205802	Akaike info criterion		6.398626
Sum squared resid	271.0038	Schwarz criterion		6.634643
Log likelihood	-42.98970	F-statistic		0.454636
Durbin-Watson stat	1.384834	Prob(F-statistic)		0.767355

Source: Researchers' E-view Results

From the above table, the result indicates that economic growth has positive and non-significant impact on the Nigerian Stock Market turnover ratio (SMTR) (coefficient of stock Market turnover ratio = 9.825, t-value = 0.950). The result indicates that a one percent (1%) increase in economic growth will bring about a 9.825% in the market turnover of the Nigerian Stock Exchange hence indicating high liquidity in the market. The Coefficient of determination ( $R^2$ ) is 95.4%. This is very high indicating that the variation in the dependent variable (gross domestic product) was 95.4% captured by changes in the independent variable (market capitalization). The variation was properly adjusted by the adjusted  $R^2$  of 88.46%. The Durbin Watson (d test statistic) was 1.385 which is less than the rule of thumb value of 2 indicating that there was no sign of autocorrelation.

Table 4.3 presents the regression results of the third hypothesis

Table 4.3 Regression Results of Hypothesis Three

Dependent Variable: GDPGR

Variable	Coefficient	Std. Error	t-Statistic	Prob.
SMVTR	-3.244388	3.952522	-0.820840	0.4309
C	359.0371	261.6803	1.372045	0.2000
R-squared	0.953872	Mean dependent var		7.069360
Adjusted R-squared	-0.884579	S.D. dependent var		4.783058
S.E. of regression	5.205802	Akaike info criterion		6.398626
Sum squared resid	271.0038	Schwarz criterion		6.634643
Log likelihood	-42.98970	F-statistic		0.454636
Durbin-Watson stat	1.384834	Prob(F-statistic)		0.767355

Source: Researchers' E-view Results

From table 4.3 above, the result indicates that economic growth has negative and non-significant impact on the Nigerian Stock Market Value Traded Ratio (SMVTR) (coefficient of stock market value traded ratio = -3.244, t-value = -0.821). The result indicates that a one percent (1%) increase in economic growth will bring about a 3.244% decrease in the market traded turnover ratio of the Nigerian Stock Exchange. The Coefficient of determination ( $R^2$ ) is 95.4%. This is very high indicating that the variation in the dependent variable (gross domestic product) was 95.4% captured by changes in the independent variable (market capitalization). The variation was properly adjusted by the adjusted  $R^2$  of 88.46%. The Durbin Watson (d test statistic) was 1.385 which is less than the rule of thumb value of 2 indicating that there was no sign of autocorrelation.

## 5.0 Conclusion and Recommendations

The issue of the relationship between stock market and economic growth has generated considerable debate among, economists and financial experts over the years. The debate primarily revolves around two major questions: Firstly,

is there any relationship whatsoever between financial sector development and economic growth? Secondly, if any, what could be the nature of the relationship and direction of causality, that is, does financial sector development promote economic growth or is it economic growth that fosters financial sector development? These questions prompted our desire to examine the reverse effect between capital market developments on economic growth. The possible directions of causality between financial sector development and economic growth as highlighted by Patrick (1966) in his supply-leading and demand-following hypotheses throw-up several interest in academic literature. While the supply-leading hypothesis claims a causal relationship from financial development to economic growth such that the intentional creation and development of financial institutions and markets would increase the supply of financial services and, thus, lead to economic growth, the demand-following hypothesis claims that it is the growth of the economy that creates increased demand for financial services which, in turn, leads to the development of financial markets. The result emanating from our findings suggest that economic growth has positive and non-significant impact on market capitalization ratio and turnover ratio of the Nigerian stock exchange but had a negative on the Nigerian stock market value traded ratio.

Economic growth could be refers to as the increase in the amount of the goods and services produced by an economy over time. Economic growth could be attributed to increases in population, accumulation of capital, and increased productivity. Increases in productivity are a major factor responsible for per capita economic growth. An increase in per capital income of Nigerian citizens (investors) could assist investors invest in long-term financial assets, in many ways through the capital market mechanism. Thus, it will bring together buyers and sellers of securities and ensure the marketability of investments hence enhancing liquidity of the market.

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