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The Role of Stock Market Development on Economic Growth in Nigeria: A Time Series Analysis

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Abstract

This study investigated the role of stock market development on economic growth of Nigeria using a 15-year time series data from 1994 - 2008. The method of analysis used is Ordinary Least Square (OLS) techniques. The study measures the relationship between stock market development indices and economic growth. The stock market capitalization ratio was used as a proxy for market size while value traded ratio and turnover ratio were used as proxy for market liquidity. The results show that market capitalization and value traded ratios have a very weak negative correlation with economic growth while turnover ratio has a very strong positive correlation with economic growth. Also, stock market capitalization has a strong positive correlation with stock turnover ratio. This result implies that liquidity has

propensity to spur economic growth in Nigeria and that market capitalization influences market liquidity. We should view with caution the notion that stock market size is not significant for economic growth since multicollinearity exists in the data used for this analysis. The government should make policies that boost the interest of domestic investors in Nigeria as this might spur investors' interest and boost stock market activity.

Keywords: Stock Market Development, Economic Growth, Time Series Analysis, Nigeria, Market capitalisation, liquidity.

Introduction

Traditional theorists believed that financial market in general has no correlation with economic growth. This proposition aroused studies on finding the effect of financial market on growth. Ample of studies have debunked the traditionalists and established association between stock market and economic growth.

In a developing economy like Nigeria, the development and growth of stock markets have been widespread in recent times. Despite the size and illiquid nature of stock market, its continued existence and development could have important implications for economic activity. For instance, Pardy (1992) has noted that even in less developed countries capital markets are able to mobilize domestic savings and able to allocate funds more efficiently. Thus stock markets can play a role in inducing economic growth in less developed country like Nigeria by channeling investment where it is needed from public. Mobilization of such resources to various sectors certainly helps in economic development and growth. Stock market development has assumed a developmental role in global economics and finance because of their impact they have exerted in corporate finance and economic activity.

Ample of studies in Nigeria investigated the role of stock market development on economic growth. Most of the studies noted that Nigerian stock market spur economic growth (Olofin and Afangideh, 2008; Ezeoha, Ogamba and Onyiuke, 2009 and Ogunmuyiwa, 2010). These studies in Nigeria found positive impact from stock market development to economic growth; this study is prompted by opposing studies witnessed in South Africa (Odhiambo, 2009 and Ndako, 2009). Odhiambo (2009) says that stock market development Granger-cause economic growth, Ndako (2009) says the direct opposite: economic growth Granger-cause stock market development; all in same country, with similar time series data. Also, a very recent study by

Ake and Ognaligui (2010) posited that Douala Stock Exchange does not affect Cameroonian economic growth.

On the strength of the above, this study attempts to dig out the empirical evidence in the context of Nigeria regarding the role of stock market development on economic growth. Specifically, this paper investigates the role of stock market size and liquidity on economic growth.

These objectives are tested with the following hypotheses:

1. H_o: There is no significant relationship between stock market size and economic growth.

2. H_o: There is no significant relationship between stock market liquidity and economic growth.

The remaining portion of this paper is treated as follows: section two is review of empirical work, section three is methodology, section four is the result and discussion while section five is the conclusion and recommendations.

Review of empirical work
A good number of studies have been done on the roles of stock market development and economic growth some of which produced conflicting findings. Tuncer and Alovsat (2001) examined stock market-growth nexus and found a positive casual correlation between stock market development and economic activities. Chen and Wong (2004) elaborated that the nexus between stock returns and output growth and the rate of stock returns is a leading indicator of output growth. According to Agarwal (2001) the study of stock market development and economic growth in African countries suggested a positive relationship between several indicators of the stock market performance and economic growth. This study was expanded by Mohtadi and Agarwal (2001) that covers 21 emerging markets over 21 years and found in addition that this relationship exists both directly as well as indirectly by boosting private investment behaviour. The studies then lend support to the financial intermediation literature as well as to the traditional growth literature.

In Nigeria, Osinubi (2001), ventured into knowing whether "stock market promotes economic growth". The study employed the least square regression using data from 1980 – 2000. The result established positive link between economic growth and stock market development and suggest the pursuit of

policies geared towards rapid development of the stock market. Udegbunam (2002) noted that Nigerian economy is moving towards increased liberalization, greater openness and greater financial development. He then studied the implications of these developments for industrial growth in Nigeria using simple model which relates industrial output growth to openness, stock market development and some control variables. The study suggests that openness to world trade and stock market development are among the key determinants of industrial output growth in Nigeria.

In the other hand, a study in Germany found that stock market volatility has a significant and negative impact on growth (Arestis, Demetriades and Luintel, 2001).

Mishkin (2001) and Caporale and Soliman (2004) provided the evidence that an organized and managed stock market stimulate investment opportunities by recognizing and financing productive projects that lead to economic activity, mobilize domestic savings, allocate capital proficiency, help to diversify risks, and facilitate exchange of goods and services. Undoubtedly, stock markets are expected to increase economic growth by increasing the liquidity of financial assets, make global and domestic risk diversification possible, promote wiser investment decisions, and influence corporate governance that is, solving institutional problems by increasing shareholders' interest value. Bell and Rousseau (2001) evaluated the relationship between individual macroeconomic indicators and measures of financial development in India and revealed that the financial sector has been instrumental in promoting economic performance.

The study finds that the stock market and economic growth both may be able to promote growth, with the impact of the banking system being stronger. With well-functional financial sector or banking sector, stock markets can give a big boost to economic development (Rousseau and Wachtel, 2000; Beck and Levine, 2003).

Capasso (2003) provide further insight into the linkages between stock market development and economic growth within the context of a dynamic general equilibrium framework of informational asymmetries, endogenous contract choice and capital accumulation. The findings contend that stock market activity is closely related to real activity, with firms having a greater preference towards issuing equity (rather than debt) as capital accumulation proceeds.

Efficient stock markets provided guidelines to keep appropriate monetary policy through the issuance and repurchase of government securities in the liquid market, which is an important step towards financial liberalization. Similarly, well-organized and active stock markets could modify the pattern of demand for money, and would help create liquidity that eventually enhances economic growth (Caporale and Soliman, 2004). Similarly, Siliverstovs and Duong (2006) revealed that the accounting for expectations has represented by the economic sentiment indicator in which stock market has certain predictive content for the real economic activity.

Levine (2003) shed some empirical light on the ambiguous predictions about the relationship between stock market liquidity and economic growth. The paper presents cross-country evidence on the association between one measure of stock market liquidity – the total value of stock transactions divided by GDP – and average economic growth rates over the period 1976 – 1993. The data suggest that there is a strong positive relationship exists between long-run economic growth rates and stock market liquidity. This positive relationship is found to be robust even to various changes in the containing information set.

Chen, Roll and Ross (2004) test whether innovations in macroeconomic variables are risks that are rewarded in the stock market. Financial theory suggests that the following macroeconomic variables should systematically affect stock market returns: the spread between long and short interest rates, expected and unexpected inflation, industrial production, and the spread between high- and low-grade bonds. They found these sources of risk are significantly priced. They also found that neither the market portfolio nor aggregate consumption is priced separately.

The study of Azarmi, Lazar and Jeyapaul (2005) tend to suggest that relevance of stock market development to economic growth is a function of economic policies prevalent in the economy of study. They examined the empirical association between stock market development and economic growth for a period of ten years around the Indian market "liberalization" event (1981 – 2001). Their primary object of the study is to know whether Indian stock market is a casino or not. The study revealed: Indian stock market development is not associated with economic growth for period 1981 – 2001; relevance of stock market to economic growth during the pre-liberalization era; negative correlation between stock market development and economic growth for the post-liberalization era; Indian stock market is a

casino for the sub-period of post liberalization and for the entire ten-year event study period. In particular their study result is consistent with the suggestion that the Indian stock market is a casino for the sub-period of post-liberalization and for the entire ten-year study period.

The study by Niewerburgh, Buelens and Cuyvers (2005) investigated the long term relationship between financial market development and economic development in Belgium. They employed stock market indicators from 1873 – 1935 and found that Institutional changes affecting the stock market explain the time-varying nature of the link between stock market development and economic growth. This credited the finding by Azarmi, Lazar and Jeyapaul (2005) that economic policies in vogue influence the relevance of stock market indicators on economic growth.

Adjasi and Biekpe (2005) found a significant positive impact of stock market development on economic growth in countries classified as upper middle-income economies. Bahadur and Neupane (2006) concluded that stock market fluctuations help in the prediction of the future growth of an economy.

Osei (2006) investigates both the long run and the short run relationships between the Ghana stock market and macroeconomic variables. The study establishes that there is cointegration between the macroeconomic variables and Ghana stock market. The results of the short run dynamic analysis and the evidence of cointegration mean that there are both short run and long run relationships between the macroeconomic variables and the index. In terms of Efficient Market Hypothesis (EMH), the study establishes that the Ghana stock market is informationally inefficient particularly with respect to inflation, treasury bill rate and world gold price.

Hasan, Wachtel and Zhou (2007) posited that profound changes have occurred in both the Chinese political and economic institutions over the years. They believed the pace of transition has led to variation across the country in the level of development. They then used panel data for the Chinese provinces to study the role of legal institutions, financial deepening and political pluralism on growth rates. The study uses regression models to explain provincial GDP growth rates. The study found that the development of financial markets, legal environment, awareness of property rights and political pluralism are associated with stronger growth.

Yartey and Adjasi (2007) studied critical issues and challenges of stock market development in Sub-Saharan Africa and found that stock markets have contributed to the financing of the growth of large corporations in certain African countries. The study found inconclusive evidence on the impact of stock markets on economic growth in African countries, but acknowledged that the stock market value traded seems to be positively and significantly associated with growth.

Olofin and Afangideh (2008) investigated the role of financial structure in economic development in Nigeria using aggregate annual data from 1970 to 2005. The study developed a small macroeconomic model to capture the interrelationships among aggregate bank credit activities, investment behavior and economic growth given financial structure of the economy. The study holds that a developed financial structure has no independent effect on output growth through bank credit and investment activities, but financial sector development merely allows these activities to positively respond to growth in output.

Most of the studies so far revealed focuses on relationships; studies from 2008 found a new question of concern to policy makers. The issue of causal effect of stock-growth nexus emanates here, though previous researches are not totally in agreement as to the relationship of stock market development in particular, and the general financial market with economic growth. Brasoveanu, Dragota, Catarama and Semenescu (2008) examine the correlation between capital markets development and economic growth in Romania using regression function and VAR models. The study revealed that capital market development is positively correlated with economic growth, with feed-back effect, but strongest link is from economic growth to capital market suggesting that financial development follows economic growth, economic growth determining financial institutions to change and develop.

In the work of Riman, Esso and Eyo (2008), they posed a big question as to whether there really is a link between stock market performance and economic growth in Nigeria, or are the stock market liquidity just highly correlated with some exogenous non-financial factors? Findings suggest that long run relationship exist between stock market and economic growth. The study identified a uni-directional causality that runs from stock market to economic growth but suggest that caution should be exercised in interpreting this uni-directional causality since other non-financial exogenous variables

such as have been identified to influence the direction of stock market development in Nigeria.

In the year 2009, stock-growth nexus received much research concern from Nigerian academics. Their studies view the stock-growth concern from varying aspect and do not have unifying research findings in Nigeria regarding stock market development and economic growth. The work of Ezeoha, Ogamba and Onyiuke (2009) was designed primarily to examine the nature of relationship existing between stock market development and the level of investment flows in a country with a high degree of macroeconomic instability; and whether the stock market plays a uniform role in attracting both domestic and foreign investments in such economic situation. The study shows that development in the Nigerian stock market over the years was able to spur growth in domestic private investment flows, but unable to do so in the case of foreign private investment; and that development in the country's banking system rather had some destabilizing effects on the flows of private investments. This study, according to the researcher, is among its kind to have empirically sort for and established some discriminate effects of stock market development in the flows of domestic and foreign private investment. This study tries to link the relationship among the variables to spur economic growth with stock market development. Maku and Atanda (2009) further study these variables by posing a big research question: do macroeconomic indicators exert shock on the Nigerian capital market? This question aided them to examine the long-run and short-run effect of macroeconomic variables on the Nigerian capital market between 1984 and 2007. The Augmented Engle-Granger cointegration test they conducted revealed that macroeconomic variables exert significant long-run effect on stock market performance in Nigeria. Also, the employed Error Correction Model showed that macroeconomic variable exert significant short-run shock on stock prices as a result of the stochastic error term mechanism. However, the empirical analysis showed that the NSE all share index is more responsive to changes in exchange rate, money supply and real output. In a nutshell, the study believed that macroeconomic indicators have simultaneous significant impact on the Nigerian capital market both in the short and long-run. Adam and Tweneboah (2009) from Ghana disagreed with Ezeoha, Ogamba and Onyiuke (2009) on the impact of Foreign Direct Investment (or Private Foreign Investment) on stock market development. Adam and Tweneboah (2009) found that there is a long-run relationship between FDI, nominal exchange rate and stock market development in

Ghana. They posited that a shock to FDI significantly influences the development of stock market in Ghana.

Ewah, Esang and Bassey (2009) appraised the impact of capital market efficiency on economic growth in Nigeria, using time series data on capitalization, money supply, interest rate, total transaction and government development stock that ranges between 1961 to 2004. The result of the study shows that the capital market in Nigeria has the potential of growth inducing, but it has not contributed meaningfully to the economic growth of Nigeria. The study attributed the findings to the low market capitalization, low absorptive capitalization, illiquidity, misappropriation of funds among others. The study believed and suggested capital market remains one of the mainstreams in every economy that has the power to influence economic growth, hence it advised the organized private sector to invest in the capital market.

The most recent research by a Nigerian (Ogunmuyiwa (2010)) on stock-growth nexus investigated the relationship as well as the channel through which investor's sentiment and liquidity affect growth. The study used time series data covering 1984 to 2005 in its investigation. The study found that both investor's sentiment and stock market liquidity Granger-cause economic growth in Nigeria.

Nowbutsing (2009) also examined the impact of stock market development on growth in Mauritius and found Stock market development positively affects economic growth in Mauritius in the short run and long run. This contribution agreed that stock market development spurs economic growth. A study from Goaied and Sassi (2010) conducted using an unbalanced panel data fro 16 MENA region countries showed that there is no significant relationship between banking and growth which reinforced the idea that banks doesn't spur economic growth.

Tachiwou (2010) studied the impact of stock market development on growth using the regional stock exchange of the West African Sub-region (*Bourse Régionale des Valeurs Mobilières* or BRVM) and found that stock market development positively affects economic growth in West African monetary union both in short and long run.

The causality effect that become a research concern with the study of Levine and Zervos (1998) and (1996) which gained popularity in 2000s started to received varying dimension of late. The issue of level and direction of

causality has remained vague and inconclusive as researchers give opposing findings on the subject. Odhiambo (2009) studied the Stock market development and economic growth in South Africa using ARDL-Bounds Testing procedure from 1971 – 2007 and found a causal flow from stock market development to economic growth in short run and long run. In the same country Ndako (2009) used similar time series data (quarterly: 1983:q1 – 2007:q4) to examine causal relationship between stock market, banks and economic growth in South Africa both found opposing result. Ndako (2009) focused on stock market, banks and economic growth and concluded that long-run bi-directional causality exists between financial development and economic growth in the banking system; but unidirectional causality is seen from economic growth to stock market system in long-run. While Odhiambo (2009) says that stock market development Granger-cause economic, Ndako (2009) says the direct opposite: economic growth Granger-cause stock market development; all in same country, with similar time series data. Could it be that Vector Error Correction Model (VECM) used by Ndako (2009) gives opposing result from that given by research done with autoregressive distributed lag (ARDL) bounds test which Odhiambo (2009) adopted? More researches in South Africa would be of help to academics and policy-makers alike.

Another study conducted by Vazakidis and Adamopoulos (2009) with VECM in France support Ndako (2009) even in similar time series (1965 – 2007). Ake and Ognaligui (2010) took a different dimension and disagreed at first hand with the issue of causality. His study investigated causality relationship between stock market and economic growth in Cameroun with time series data from 2006 to 2010 and found that Douala Stock Exchange does not affect Cameroonian economic growth.

Methodology
Model specification
This study is based on the null hypothesis that there is no significant relationship between stock market development and economic growth in Nigeria. This hypothesis may be written as follows:

H_0: Growth ≠ Stock …………………………………………… (1)

Where Growth is the time series of real capita GDP for a given relevant period and Stock is a proxy for stock market development over the same period.

Stock market development can be measured by three basic traditional characteristics (Inanga and Emenuga, 1997). This includes stock market size measured by stock market capitalization and stock market liquidity measured by total value traded ratio and turnover ratio.

A common index often used, as a measure of stock market size is the market capitalization. Market capitalization equals the total value of all listed shares. In terms of economic significance, the assumption is that market size and the ability to mobilize capital and diversify risk are positively correlated.

Liquidity is used to refer to the ability of investors to buy and sell securities easily. It is an important indicator of stock market development because it signifies how the market helped in improving the allocation of capital and thus enhancing the prospects of long-term economic growth. This is possible through the ability of the investors to quickly and cheaply alter their portfolio thereby reducing the riskiness of their investment and facilitating investments in projects that are more profitable though with a long gestation period. Two main indices are often used in the performance and rating of the stock market: total value traded ratio; and turnover ratio.

Total value traded ratio measures the organized trading of equities as a share of the national output. Turnover ratio is used as an index of comparison for market liquidity rating and level of transaction costs. This ratio equals the total value of shares traded on the stock market divided by market capitalization. It is also a measure of the value of securities transactions relative to the size of the securities market.

Therefore, the equation for this study is:

$$GDP_t = \alpha_0 + \beta_1 MCR_t + \beta_2 VTR_t + \beta_3 TOR_t + U_t \qquad \ldots\ldots\ldots\ldots\ldots(2)$$

where GDP_t is the Gross Domestic Product at 1990 factor cost over the time period. MCR is the stock market capitalization ratio over the time period, VTR is the value traded ratio of domestic stock over the time period, TOR is the turnover ratio over the time period, α and β are unknown parameters to be estimated while U_t is the error term.

Data

The data used for this study is collected from Nigerian Stock Exchange Annual Reports and Accounts, Various years; Securities and Exchange Commission Annual Reports and Accounts; Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistics.

Tools of analysis
The study adopts correlation and regression analysis to explore the nature of relationships and implicit direction of the causation between dependent and independent variables of this study. Correlation coefficient is the square root of coefficient of determination R^2. Since the coefficient of determination varies between 0.0 and 1.0, it follows that the correlation coefficient must vary between +1 and -1. Both the correlation coefficient and the coefficient of determination have nothing to say about causation. However, in regression analysis, the direction of the relationship between variables is made at the outset, thus the causality is assumed rather than inferred from the model. This paper chooses a correlation coefficient ±0.50 as a benchmark for the relationship between different variables.

Results and discussion
One of the aims of this study is to explore the nature of relationships (if any) between the GDP and stock market development indexes, and between stock market development indices themselves. From Table 2, the correlations are as follows: GDP and Stock Market Capitalization ratio = -0.333; GDP and Value Traded ratio = -0.125; and GDP and Turnover ratio = 0.907. This shows that stock market capitalization and value of shares traded in the Nigerian stock exchange has negative relationship with the Gross Domestic Product at factor cost in Nigeria. This negative correlation is a very weak one. This means that increased GDP is expected to cause a decreased in market capitalization and value traded of shares on the Nigerian stock exchange. Since the significant (1-tailed) value is above the 0.05 significant levels (see Table 3), we can conclude that the suggestion that stock market capitalization and value traded are negatively correlated with GDP is not statistically significant and should not be taken serious.

On the other hand, the value of 0.907 shown for turnover ratio means that there is a very strong relationship between GDP and turnover ratio. This value is statistically significant at 0.01 level of significance which is below the 0.05 level bench marked for this test (see Sig. 1-tailed).

Likewise, the correlation between stock market development indexes shows: stock market capitalization and value traded = 0.966; stock market capitalization and turnover ratio = -0.213; and value traded and turnover ratio = -0.031. This shows that stock market capitalization and value traded have a very strong correlation which is statistically significant at 0.01 below the bench market of 0.05 level. On the contrary, the negative correlation shown

between stock market capitalization and turnover ratio; and turnover and value traded are not statistically significant and should not be taken serious.

In a nutshell, this study establishes two statistically significant relationships: a strong positive relationship between GDP and turnover ratio, and a strong positive relationship between stock market capitalization ratio and value traded ratio.

From Table 1, we form the equation of the relationship thus:

GDP = 426125 -1983MCR + 19866VTR + 11464TOR

$\qquad$ (34180) $\quad$ (726) $\qquad$ (7963) $\qquad$ (2417)

Adjusted R-Squared (Adj R^2) = .873

F-test$_{0.5}$ = 33.115 (.0001) $<$ F$_{tab}$ = 27.2

Durbin-Watson (DW) $\qquad$ = 1.607

To explain the authenticity of these relationships, we consider the coefficient of determination (r^2). This statistic is used to show the extent to which variation in economic growth is explained by stock market development indices. Since the sample for this study is small (15-year annual time series), we use the adjusted r^2 to avoid optimistic overestimation of the true value in the population (Pallant, 2001). The value of the Adj r^2 is .873. This suggests that 87% of the variations in GDP are explained by stock market development index (turnover ratio). The F-statistic shows that the value is statistically significant at value below 0.5 significant level.

The presence of autocorrelation violates the ordinary least squares (OLS) assumption that the error terms are uncorrelated. While it does not bias the OLS coefficient estimates, the standard errors tend to be underestimated (and the t-scores overestimated) when the autocorrelations of the errors at low lags are positive. The Durbin–Watson statistic is a test statistic used to detect the presence of autocorrelation in the residuals from a regression analysis. Since the DW is equal to or approximate to 2, we say that the variables do no auto correlate and therefore the results are reliable.

Also we perform a "collinearity diagnostics" as a means for testing the multicollinearity of the independent variables. We used the column labelled Tolerance in Table 2 to for this. If this value is very low (near 0), then this indicates the multiple correlation with other variables is high, suggesting the possibility of multicollinearity (Pallant, 2001). In this study, the values in the

Tolerance are 0.033, 0.34 and 0.495 for stock market capitalization ratio, value traded ratio and turnover ratio respectively. They suggest the presence of multicollinearity.

To determine the individual contributions of the stock market indices to GDP growth, look at Table 2. Ignoring the signs of the values, the column labelled Beta shows that stock market capitalization has the highest contribution (1.43) followed by value traded (1.28) and the least is turnover (0.64). The column labelled sig. tests the statistical significance of the individual contributions of the variables. The contribution of stock market capitalization is significant at 2% level of significance; value traded at 3%. This means that the contributions of stock market capitalization and value traded ratios are not statistically significant in this study. However, the significance value for turnover is 0.1% which is below the 5% level of significance bench mark for this study. The study therefore concludes that, of the stock market indices tested, only the stock market turnover statistically significantly contributes to the growth of the GDP in Nigeria.

The regression analysis is expected to suggest the direction of causality in this study. The derived equation (GDP = 426125 -1983MCR + 19866VTR + 11464TOR) shows that there is positive relationship between GDP and liquidity (VTR and TOR). The constant (426125) means that other factors which affect GDP have aggregate positive relationship with GDP. Market capitalization ratio shows negative relationship with GDP. This implies that liquidity causes economic growth while capitalization is caused by economic growth.

The study suggests that increased market capitalisation (as proxy for stock market size) could spur increased trading in stock (which is a proxy for liquidity). Also, stock turnover ratio (as a proxy for liquidity) could influence economic growth. This follows that stock market size influences market liquidity which in turn influences economic growth in Nigeria.

Conclusion
This paper examined the role of stock market development on economic growth using time series data from 1994 to 2008. The Ordinary Least Square technique was used to assess the correlation between stock market development and economic growth, and between stock market indexes. The results show that stock market turnover ratio (a proxy for liquidity) has a very strong relationship with economic growth while stock market capitalization ratio (a proxy for stock market size) gives very weak negative correlation

which is not statistically significant. On that note, we establish that liquidity is significant for economic growth but does not establish same for stock market size. We should view with caution the notion that stock market size is not significant for economic growth since multicollinearity exists in the data used for this analysis. According to Ogunmuyiwa (2010) liquidity represents investors' sentiment which is necessary to boost activities in a stock market and facilitate economic growth.

Recommendations

This paper reiterates the recommendation of Ogunmuyiwa (2010) that the policy makers and opinion formers should gear efforts towards fine-tuning the indices that can result in long term pessimism in the stock market like unpaid dividend, delay in dividend payments and transfer of stocks. This is pertinent to encourage and 'cajole' greater population of the income citizenry into investing in the stock market. This way, activities in the market will grow, capital accumulation increased and national productively may improved accordingly.

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Table 1: Correlation Matrix

	GDP	MCR	VTR
GDP	1		
MCR	-.333 (.112)	1	
VTR	-.125 (.328)	.966[**] (.000)	1
TOR	.907[**] (.000)	-.213 (.223)	-.031 (.456)

**. Correlation is significant at the 0.01 level (1-tailed).

NB: Values in parenthesis represent T-value

Table 2: Measure of Individual Contributions and Collinearity

Model	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig	Tolerance	VIF
(Constant)	426125.297	34179.644		12.467	.000		
Stock Market Capitalisation Ratio	-1983.119	726.160	-1.437	-2.731	.020	.033	30.531
Value Traded Ratio	19865.498	7962.938	1.283	2.495	.030	.034	29.179
Turnover Ratio	11463.873	2416.902	.642	4.743	.001	.495	2.020

a. Dependent Variable: GDP at 1990 factor cost