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CAPITAL MARKET AND ECONOMIC GROWTH IN AFRICA: A PANEL DATA ANALYSIS

Mustapha Adamu Zubairu

Department of Economics and Development Studies, Federal University Dutse
Jigawa, Nigeria

Auwal Abubakar Muhammad

Department of Economics Nigerian Army University Biu Borno, Nigeria

Jamilu Mallam Sani

Department of Economics Nigerian Army University Biu Borno, Nigeria

Abstract

The study analyzes the impact of capital market on economic growth of Nigeria, Ghana, Kenya and South Africa using time series data spanning the period 1980-2014. The methodology used is panel estimation comprise of pooled ordinary least square (OLS), fixed effect and random effect techniques. Diagnostics test were also applied. The result from the pooled OLS reveals that countries have common market structure. The result of the fixed effect and random effect models confirms the existence of static interdependencies among countries which suggest the evidence of spillover effect among the countries. It also constructed three dummies aimed to account for country specific effect, the findings reveals that there is evidence of country specific effect for the period under study. However, the result of the Hausman test confirms that the null hypothesis of the random effect model cannot be rejected and suggest that the appropriate model to be used is the random effect model. Finally, the study concludes that, the nature of capital markets and the pattern of economic activities in Africa revealed the reasons why the market is performing below expectation. Therefore, the study recommends that government and regulatory agencies should promote a sound Africa stock market integration by creating a platform that will engender best corporate practice, market information which will result in growing investment, increased confidence in the financial system among African countries.

Keywords: African Countries, Capital Market, Economic Growth, Panel Data and Spillover Effect.

1. Introduction

Capital Market plays significant role in determining the condition of growth in an economy. Similarly, the market has been identified as an institution that contributes to the socio-economic growth and development of emerging and developed economies (Pat and James, 2010). This is made possible through some vital roles played, such as channeling resources, promoting reforms to modernize the financial sectors, financial intermediation capacity to link deficit to surplus sector of the economy, and a veritable tool in the mobilization and allocation of savings among competitive uses which are critical to the growth and efficiency of the economy (Pat and James, 2010). Ultimately, the relationship between capital market and economic growth is a central concern and a specific issue to both economist and policy makers (Schumpeter,

1912). Thus, the capital market comprises the complex of institutions and mechanisms through which medium term funds and long term funds are pooled and made available to individual business and governments Jhingan (2004). Similarly, the market influences economic growth through encouraging savings among individuals and providing avenues for firm financing (Charles & Charles, 2007).

Experience from the recent global financial crisis has shown that an economy with a weak monetary institution is bound to collapse as such, numerous effort and policies are being put in place by the government and monetary authorities to improve the Financial System of some African countries, yet the level of Financial Intermediation is still weak in these countries Ifuero and Abudu (2013). This is a serious impediment towards

attaining high level of growth, development and productivity. More so, contribution to the literature on the impact of Capital and Economic Growth on African Countries Nexus are numerous but more effort is still needed using panel data econometric analysis to evaluate the performance of capital market in relation to economic growth in Nigeria, Ghana, Kenya and South Africa. The study also examines the nature of cross section dependences among the countries under studies and further determines the nature of heterogeneous relationship among the variables used in the model. Therefore, the paper is divided into five sections: The first section is the introduction; the second section is the literature review, the third section dwells on methodology; fourth section discusses the result of the study; the fifth section concludes the work and proffer policy recommendations.

2. Literature Review

A number of research and studies have been carried out on the impact of capital market and economic growth on African countries. However, some of the notable empirical literatures which are considered relevant to this research study are closely examined below. Jalloh (2015) examines how stock market capitalization influences economic growth in Africa. The study employs a dynamic panel estimation approach with a view to assessing the relative impact of stock market capitalization on economic growth in Africa. The result from the study revealed that raising stock market capitalization by a marginal average of 10% induces growth on average by 5.4% in countries studied. Therefore, the positive and significant relationship between stock market capitalization and economic growth as found in this study provides encouraging signals for African countries to explore stock markets as a potential avenue for expediting economic growth. There is therefore the need for policy makers in Africa to direct attention towards the implementation of policy measures that will encourage the development of stock market with a view to promoting economic growth. The effect of macro-economic variables on stock returns in the east Africa via Kenya, Uganda and Nigeria is put forward by Kaunyangi and Tabitha (2015) panel data

regression analysis and descriptive analysis were applied in the study. Their findings reveal that macroeconomic variables are contributing significantly on stock returns in East Africa. The study recommends that policy makers in east Africa should make effort towards improving the macroeconomic condition of the region to improve stock returns. In addition, Daniel (2014) stock market integration in West African Monetary Zone and applied a Linear and Non-Linear Cointegration approach. The result from the linear cointegration indicates that the only active stock markets (Ghana Stock Exchange and Nigerian Stock Exchange) in the region are not integrated. However, the linear method shaved a bleak sign of integration. Also, a fractional integration method showed that Ghana Stock Exchange has infinite stock duration, the Nigerian Stock Exchange is long-lived, as such the markets are more of segmented than integrated and hence suggest that the countries work towards harmonizing the Capital market through cross listing and adopting common capital market policies.

Okechukwu (2013) studied the trends in stock market on sub-Saharan countries from 1991-2009. His study was on six selected countries of sub-Saharan Africa. The applied panel data analysis and his findings reveals that private capital stock market development measured by market capitalization, stock turnover ratio and foreign direct investment have positive significant correlation with growth in per capita output on sub-Saharan Africa. His study further recommends that foreign direct investment and development of equity market in sub-Saharan Africa should be encouraged through trade and market liberalization. Likewise, Ifuero and Abudu (2013), Examine stock market and economic growth in Ghana, Kenya and Nigeria. The study further explains the causal relationship and the direction of causality between stock market development and economic growth spanning from (1989-2009). The empirical findings of the study shows that there is no causal relationship between stock market development and economic growth in Ghana and Nigeria, but however revealed a bidirectional causal relationship between stock market development and economic growth in Kenya. The study further recommend that policy makers and regulatory bodies should formulate and implement policies that will attract investors and avail the

real sector of the economy the much needed fund for the production and encourage listing of companies that contribute largely to GDP in the nation stock exchange.

Kapingura and Makhetha (2013) evaluate the causal relationship between the bond market development and economic growth in African between (1995 -2012) applying the Engle Granger cointegration method and the pairwise granger causality test was likewise used. Empirical results of their finding reveals that their exist significant relationship between economic activities and bond market capitalization, implying that the African government should put in place policies which will promote the development of the bond market as one of the ways to mobilize resources and promote economic growth.

In a study of the Asian economy as an emerging economy Christopher (2013) Views the cross-sectional analysis of stock returns on the Chinese A-share stock market between (1996-2005) applying the Fama-french three-factor model (1993) and CAPM, their findings revealed a positive relationship between book-to-market ratio and stock excess returns and negative relationship between size and stock excess returns. Further implying that the fama-french three factor model is more accurate in predicting stock excess returns than the CAPM the size effect is stronger than that of the Book-to-Market ratio (BTM), the results also suggest that stock profitability is related to size and BTM ratios in China's Stock Market.

Forgat (2013) look at the finance and economic growth nexus: complementarities and substitutability between the banking sector and financial markets in Africa, using South Africa as a case study and employed the time series analysis using the VAR model. His findings revealed that financial intermediaries and financial market have different impacts on economic growth given their different roles in the economy. This implies that their bidirectional causality between stock market and economic growth and therefore recommends that financial market development should be encourages through appropriate mix of taxes, legal and regulatory policies to remove barriers to financial market operations and thus enhance their efficiency. Abidemi and

Nosakham (2013) view financial openness and capital market development for some selected West African countries from 1988 – 2010 and adopted the panel regression technique, their findings revealed that higher financial openness in the sub-region would enhance the development of domestic capital market. However, the pattern of foreign capital inflow to a country as well as the structure of external assets and liabilities appears to play a role in explaining the impact of financial openness on domestic capital markets within the West African sub-region and thus recommend the need for emerging countries, especially in the West African sub-region to be more selective in terms of inflow of foreign capital into the capital markets. Financial development and economic growth is a study put forward by MD in addition, Bayemi, Asare and Onwuka (2013) Empirical Relationship between the stock markets and macroeconomic variable evidence from African Stock Markets from (1988 - 2011) and employed a panel residual based test of pedroni and error correction based test of wasteland, their findings revealed that in the long-run, foreign direct investment and external debt exert a positive impact on the African Stock Market while negative impact will be recorded for money supply.

Masafumi (2013) capital market integration: progress ahead of the East African community monetary Union. The study confirms that member countries have made noticeable progress in developing domestic capital markets through a regional approach, removing constraints on capital transactions and harmonizing market infrastructure. Policy option recommends the need to harmonize market infrastructure, strengthen regional surveillance mechanism and encourage local currency bond issuance by multilateral financial institutions. Collins (2012) noted that, despite experiencing rapid growth in their number and size, facts shows that African Stock Market remains highly fragmented, small, illiquid and technologically weak, thus affecting its efficiency. In addition, Collins (2012) attempts to empirically ascertain whether African Stock Markets can improve its information efficiency, employing parametric and non-parametric variance ratios tests on 8 African continent-wide spanning from (1995 - 2011). Findings revealed that formal harmonization and

integration of African Stock Markets may improve their informational efficiency. Furthermore, examining the role of capital market in emerging Economy is a study by Isenmila and Akinola (2012), the study reveals that a peculiar experience in most African economies is that the challenges with good quality institutions such as democratic accountability could have resulted to the weak capital market development in Africa because they increase political risk and reduce the viability of external finance. Samuel (2011) examined the challenges to the growth of capital markets in underdeveloped economies between (2003-2007) despite the universal recognition that stock exchanges are the most pragmatic and cost effective method of raising capital especially to private sectors, firm in developing and under developing economies have consistently stunned the stock exchange hence most of the IPDs that have occurred on the exchanges in underdeveloped markets have been state driven rather than market driven. Applying expert interviews of key informants, to develop a conceptual model for examining the various factors for the private sectors failure to adequately use the stock market as a financing market, subsequently for firms to go IPO or to operate to a higher global business standard there is a need for legislation obligating firms of a given size to file financial statements with a designated body. This requirement is now standard in several emerging market jurisdictions such as Taiwan. Limitations to these research according to Samuel (2011) is the paucity of data in which private firms are not obliged to disclose to the public their operating results and financial positions.

Jonathan (2011) relate the determinants of venture capital in Africa, applying a cross-sectional data set covering (36) African countries in a semi-logarithmic model. The study finds that the rule of law, R & D expenditure as a percentage of GDP and better information between investors and potential investees are positively and significantly related to ventures capital activity in Africa. Furthermore, it also finds that capital gains tax rates are negatively and significantly related to venture capital activity, on the continent, employing the Ordinary Least Square (OLS) method. Also, the findings indicate that institutional environment affecting financial factors and regulatory factors attempts to explain venture capital

activities in Africa, stating that if private sector development actors wish to increase the potency of the venture capital instrument in a missing middle reduction toolkit, they should focus on these factors to stimulate venture capital activity on the continent. Aboudou (2010) observed that stock market is an indicator of an economy financial health, while examining stock market development and economic growth in the period (1995-2006) via the time series econometric investigation attempting to analyze both the short-run and long-run relationship by constructing an error correction model applying the major stock market indicators namely size and liquidity, finding explains that stock market development positively affect economic growth in West African monetary union both in the short-run and long-run. In the same vain MD Wadud (2009) made an in-depth study in the South Asian countries being a developing continent like Africa on financial development and economic growth carefully relating the long-run causal relationship between financial development and economic growth for the South Asian countries of India, Pakistan and Bangladesh for a period between (1976 - 2008), stating that financial development emanates from financial systems that encourage financial stability applying the cointegrated vector autoregressive model to establish a long-run relationship between financial development and economic growth. The findings explain a stable relationship between financial development and economic growth for these countries furthermore results of error correction models indicate Granger causality between financial developments to economic growth. Juan, Krishna and Artur (2008) scrutinize how growth and quality of capital market drive foreign capital: The case of cross-border mergers and acquisitions from leading emerging Economies from 1987-2006. Findings revealed that stock market variables, via Capitalization and Value Addition encourage the number of deals and value of cross border mergers and acquisition and suggested that higher reforms in capital market could increase firm level of direct investment. Mohtadi and Agarwal (2004) examined the Capital Market and Economic Growth in developing countries using a panel data for 21 emerging markets for a period of 21 years (1977 - 1997), their

findings revealed that turnover ratio is an important and statistically insignificant determinant of investment by firms and that this investment in turn are significant determinant of aggregate growth. Foreign direct investment is also found to have a strong positive influence on aggregate growth. The result of their study indicates that both turnover ratio and market capitalization are important variables as determinants of economic growth. Geneva (2002) elucidates “Promoting growth in African Capital Markets by implementing, the New Partnership for African Development (NEPAD) programme”. NEPAD is a new approach of partnership with the rest of the world based on a promise by African nations to be of collective good behavior, domestically, economically and politically. The success of NEPAD is also based on its being owned and led by Africans.

Demetriades and Aretis (2001) utilized time series data from five developed countries, to examine the relationship between stock market and economic growth, controlling for other effect of the banking system and stock market and economic growth, controlling for other effect of the banking system and stock market volatility. Their result supports the view that, although banks and stock market may promote economic growth, the effect of banks is more. They further elucidate that the contribution of stock market to economic growth may have been exaggerated by studies that uses cross country regressions. Analyzing the development of Capital Market and growth of Sub-Saharan Africa a case study of Ghana is the work of Ziorklui (2001), the study identifies constraints of capital market development in Ghana and looks at how recent policy changes impact market development, growth and poverty alleviation. The study is an integration of an analytical framework with a synthesis of secondary financial and primary data collected through field survey questionnaires and interviews. Descriptive statistical test and econometric analysis was employed to stylized facts of capital market in Ghana. His findings revealed that financial sector reform has addressed some major constraint towards the development of the capital market in Ghana. Thus suggested that it is crucial create a viable macroeconomic environment for capital market development through Deficit reduction and balanced budget strategy.

Kofi (1998) assess the factors affecting the delivery and settlement of transactions are performed satisfactorily by brokers and further establishes that the entry into and exist from the Ghana stock market are without any significant restriction. The study further recommends a campaign to educate the Ghanaian public about the activities of the Ghana stock exchange and to promote investment in general and further advice the government on the need to give fiscal incentives in the form of taxation in favor of listed companies and pursue prudent macroeconomic policies, particularly in the area of inflation management. Based on the empirical studies analyzed in the course of this research work on African countries, it was observed by some scholars that capital market has positive impact on economic growth while other scholars are of the view that the market has no impact on economic growth. Therefore, this study is aimed at contributing to this debate through panel data econometric analysis, pooled OLS, fixed effect, random effect model and Hausman test on Nigeria, Ghana, Kenya and South Africa.

3. Methodology

This paper employs secondary data basically cross sectional and time series data ranging from 1980-2014. The relevant data were sourced from Central Bank statistical bulletin of relevant countries, world federation exchange data base and data bank group database on the following variables; Real Gross Domestic Product (RGDP), Stock market capitalization (SMC), Stock turnover ratio (STR), Value of traded stock (VTS), Number of listed stock (NLS). The African capital Market of the following Countries are included in the Paper Nigeria, Ghana, Kenya and South Africa. However, the choice of selecting these countries are based on availability data and nature of economic activities involved in the country thus, studying their financial market will us make generalization on other African countries. The technique of analysis employed in this paper is Panel econometric analysis. Also, fixed effect model, Random effect model and pooled ordinary least square model will be relied upon to analyze the data collected. Panel econometric analysis plays a vital

role when it becomes necessary to examine the nature of cross section dependence among the countries under studies and to determine the nature of heterogeneous relationship among the variables used in the model.

3.1. Model Specification and Estimation Procedure

The functional model is specified as:

$$RGDP_{it} = f(SMC_{it} TVL_{it} STR_{it} NLC_{it} \omega t \varepsilon_{it}) \dots \quad (1)$$

Where

RGDP= Gross Domestic Product
 SMC = Stock Market Capitalization
 STR= Stock Turnover Ratio
 TVL =Value of Traded Stock
 NLC =Number of Listed Securities
 Wt = Country-specific effect at time t
 $\alpha_0 \dots \alpha_6$ = Parameters
 t=Current period
 i=individual observation
 e=Error term in the model

The Model will be estimated in the context of panel data. Thus, the study will use the fixed effect model (FE), Random effect model (RE), and the pooled Ordinary least Square model. In a panel data set, a given sample of N individuals is observed at different time periods and thus provides multiple observations on each individual in the sample.

$$y = \alpha + x\beta + \mu \dots \dots \dots (2)$$

Where y explain log of gross domestic product and x is a vector of determinant of capital market growth. Furthermore, assume that there are data for individuals at time periods. However, if it is constant for all cross-section units, then the data set is called a balanced panel. Otherwise the panel is unbalanced.

4. Results and Discussions

In order to assess the impact of capital market on economic growth, data on key variables of interest including stock market capitalization, stock market turnover ratio, value of traded stock and number of listed securities were collected from a cross section of four African countries with well-functioning capital market spanning the period 1980-2014.

Table1:Summary of Panel Data Estimation Result

Explanatory Variables	Pooled Least Square Estimation		Fixed Effect		Random Effect	
	Coefficient Estimate	P-Value	Coefficient Estimate	P-Value	Coefficient Estimate	P-Value
SMC	.1757477	0.287	.1360508	0.426	.1757477	0.284
TVL		.08	1.84e+09	0.150	2.51e+09	0.026
VTs	.0357323	0.914	-.0010985	0.997	.0357323	0.914
NLC	873e+07	0.127	1.67e+08	0.010	8.73e+07	0.124
R.Squared	0.60					
Adj.R.Squared	0.59					
No Of Cross Section	4					
Observation	91					

SOURCE: Authors computation Using Stata 13 Software.

The result from the pooled OLS showed that the parameters of the model confirm to the apriori expectation and the explanatory variable is best explained by the dependent variables. The R^2 is approximately 60% which explains the joint significance in explaining the explanatory variables which are captured by GDP while 40% explains other factors not captured in the model. In addition, the coefficient measures the unit change in growth associated with a unit change in the parameters that indicate stock market capitalization, stock market turnover ratio, value of traded stock, number of listed securities and gross domestic product. However, stock market capitalization, value of traded stock and number of listed securities were found to be statistically insignificant while turnover ratio is found to be statistically significant this implies that countries under study have common capital market structure that may be similar within each country. However, this finding is similar with the study of Ifuero and Abudu (2013) and Echokoba, Ezu and Egbunike (2013) Furthermore, when all the variables in the model are held constant; there will be a positive variation to a tune of 2.15 units in GDP. A unit change in stock market capitalization will lead to an increase in GDP by 0.17 which is statistically insignificant. However, a unit change in stock market turnover ratio will lead to an increase in GDP by 2.51 which is statistically significant. Also, a unit change in value of traded stock will lead to an increase in GDP by 0.03 which is statistically insignificant and a unit change in number of listed securities will lead to an increase in GDP to a tune of 8.73 units which is statistically insignificant. Therefore, the result from these findings indicates that all the countries under study have common capital market structure that may be similar within each country. Thus, countries exhibit somewhat similar pattern of stock market.

More so, the result of the fixed effect and random effect model where country specific effect is considered confirms the existence of static interdependencies among countries which suggest the evidence of spill over transmission of capital market among African countries under study. Also, the use of Hausman test was to

determine which among the random effect and the fixed effect is the right one for use in the course of this study. Therefore, in this study the null hypothesis of the random effect model cannot be rejected and implies that the appropriate model to be used in modeling the impact of capital market on economic growth on selected African countries is the random effect model. This finding is similar with the study of Kaunyangi and Tabitha (2015) who examined the effect of macroeconomic variables on stock returns in east African community stock exchange market. Though, their study link macroeconomic variable with stock returns on east Africa but however revealed that the appropriate model to be used in modelling the macroeconomic variables on stock returns in east Africa is the random effect model. This paper further estimated fixed effect dummy variables regression model in table 4.8 (see appendix) the study introduces three dummies(d_2 d_3 d_4) the dummies constructed are aimed to account for country specific effects in the relationship as there exist differences in the nature and pattern of market in each country. Also, introducing these dummies will enable us account for other variables that are not captured in model. Therefore, imposing the dummies in the model enables us estimate the average effect of the parameters in the model. Going by the result from this findings it can asserted that since the coefficient of dummy variable d_2 is -3.15 it implies that Ghana is 3.15 lower than Nigeria in terms of growth rate in gross domestic product. Similarly, coefficient of dummy variable d_3 is -4.06 which implies that Kenya is 4.06 times lower than Nigeria in terms of growth rate in gross domestic product and coefficient of dummy variables d_4 is -1.83 which implies that South Africa is -1.83 times lower than Nigeria in terms of growth rate in gross domestic product. In order to make an outstanding comparison, the study utilized the Breush-Pagan test for random versus OLS. The use of this test was to make a comparison between the random effect and the OLS model. The probability values were found to be more than 0.05. Hence we cannot reject the null hypothesis and conclude that the random effect model is more appropriate than the OLS. This finding is consistent with the findings from the Hausman test in the previous paragraph which suggests that the appropriate model, in

modeling the impact of capital market on economic growth in Africa is the random effect model.

5. Conclusion and Recommendations

This study examined the economic impact of capital market and economic growth of Nigeria, Ghana, Kenya and South Africa. Panel estimation revealed a weak relationship between capital market and economic growth in Africa. Combined data of the capital market of the four countries do not have significant effect on the combined economy. Hence, it is observed that capital market in Africa generally have not contributed significantly to growth and development of African countries. Therefore, the nature of capital markets and the pattern of economic activities in Africa revealed the reasons why the market is performing below expectations as the market has suffered from numerous factors such as low level of public awareness and participation, failure of corporate

governance, market failure and policy inconsistencies are the factors that account why the market is contributing insignificantly to GDP among African countries. Therefore, the economic draw of this market and its negative contribution to GDP is hampered by many factors which if not properly addressed squarely the market may likely collapse completely.

Based on the aforementioned, there is need for government and regulatory agencies to promote a sound Africa stock market integration by creating a platform that will engender best corporate practice, market information which will result in growing investment, increased confidence in the financial system among African countries. Likewise, government and regulatory agencies should ensure relative stability in the bank-based financial sector and market based stock market of the economy to foster capital formation, increased investment and ensure stability in the financial system.

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