

Stock Market and Economic Growth in Ghana, Kenya and Nigeria

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Abstract

In the paper, we examine the causal relationship and the direction of causality between stock market development and economic growth in Ghana, Kenya and Nigeria. In examining the causal relationship and the direction of causality, we used the Granger Causality test procedure as developed in Granger. The study regressed five indicators of stock market namely stock market capitalization (MC), stock turnover ratio (STO), stock traded value (TVL), number of listed securities (LS), and stock market index (MI) against the real gross domestic product (GDP) which is used as a proxy for economic growth.

Using the 1989 – 2009 data sets, the empirical findings of the study show that there is no causal relationship between stock market development and economic growth in Ghana and Nigeria, but revealed a bidirectional causal relationship between stock market development and economic growth in Kenya. When MC was used as a proxy for stock market development, MC and LS were found to Granger cause economic growth. Bidirectional causality was found between STO and GDP. TVL was found to have a strong negative effect on GDP. Based on the results of the study, we 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 production and encourage listing of companies that contribute largely to GDP in the nation stock exchange.

Keywords: stock market, economic growth, granger causality test

1. Introduction

The use of stock market Indicator for the prediction of future economic growth or vice versa has been a debatable issue in finance and economics. It is commonly believed that large decreases in stock prices are reflective of future recession, and increasing stock prices are leading indicators of future economic growth (Mun, Siong & Thing, 2008). For instance, the uncertainty embedded in the recession of 2009 triggered a large-scale drop in stock prices that was reflected in the Dow Jones and the S&P 500 (Fuentes, 2010).

Stock market has been associated with economic growth through its role as sources for new private capital. On the other hand, economic growth may be the catalyst for stock market growths. According to Osamwonyi (2005:4), “a stock exchange is an arrangement for trading financial securities and where one can raise long-term capital. It seeks the efficient allocation of available capital funds to the diverse uses in the economy and through its extreme sensitive pricing mechanism, ensures that the available capital resources are allocated to firms with competitive returns”. Stock markets are seen as enhancing the operations of the domestic financial system in general and the capital market in particular (Kenny & Moss, 1998). According to Yartey & Adjasi, (2007) and Singh, (1997), the establishment of stock markets in Africa is expected to boost domestic savings and increase the quantity and quality of investment.

African Stock Markets are really no more than equity exchanges as the bond markets are essentially non-existent (Osaze, 2007). Over 50% of 54 African countries operate stock exchanges. The rapid expansion of these stock exchanges in the continent has contributed to economic development in various ways such as facilitating long term capital mobilization, the provision of alternative investment opportunities, attracting foreign capital inflows and serving as a signal of economic performance (Kumo, 2009). Well functioning stock markets, along with well-designed institutions and regulatory systems will foster economic growth.

The principal channel for the linkage between stock market development and economic performance is liquidity provision of the market (Senbet & Otchere, 2008). Yartey & Adjasi (2007) found out that, stock markets contribute to financing of corporate investments and hence growth of listed firms in Africa as they are required to keep best practices.

This shows that corporate financing channel is another mechanism for the stock markets to impact aggregate economic performance (Senbet & Otchere, 2008). Empirical findings indicate that economic growth increases relative to the rest of the world after a stock exchange opens. Mohtadi & Agarwal (2004) examine the link between stock market development and economic growth in developing countries, using a Panel data approach that covers 21 emerging markets over 21 years (1977-1997), they find that turnover ratio is an important and statistically significant determinant of investments by firms and that these investments are in turn significant determinants of aggregate growth. Foreign Direct Investment (FDI) is also found to have a strong positive influence on aggregate growth (Ogunkola, Bankole, & Adewuyi, 2006).

Stock market activities play a major role in determining the level of economic activities in both emerging and developed economies, by providing and efficiently allocating capital for investment, providing appropriate platform to engender best corporate practices that will result in growing investment and further growth of the economy. What may not be clear is whether there is a long-run bidirectional causality between financial development and economic growth or not. Another grey area is the relationship between stock market indicators and the proxy for economic growth (real gross domestic product) in the emerging economies. Other studies show that while there is some consensus on the positive relationship between stock market development and economic growth, there is also disagreement on the direction of causal relationship with some suggesting that it is from finance to economic growth and others suggesting the opposite that the link is bidirectional. Some contend that there is no link between stock market development and economic development (Sililo, 2010). However, the causal relationship between the indicators of stock market development and economic growth in the developing countries is still a thing of controversy particularly in the Sub-Saharan region. Some critics of stock market integration point out that some exchanges in Africa are mere national status in that the supposed effect of their existence is not felt in the economy and that some exchanges stems from external influence rather than local demand (UNECA, 2006). In the light of this, we seek to find out, a causality relation between stock market development and economic growth in Ghana, Kenya and Nigeria.

The study investigated causal relationship between stock market development and economic growth in Ghana, Kenya and Nigeria. Specifically, the study investigated:

- if there is a causal relationship between stock market development and economic growth in Ghana, Kenya and Nigeria; and also
- determine the direction of flow of causality between stock market development and economic growth in Ghana, Kenya and Nigeria.

The two hypotheses are:

H_{01} : There is no causal relationship between stock market development and economic growth

The second hypothesis states that:

H_{02} : The direction of causality link between stock market development and economic growth does not flow from stock market development to economic growth and vice versa.

The study employed data of three African countries which are among the leading emerging stock markets: Ghana, Kenya, and Nigeria to see the causal relationship between stock market indicators and economic growth. These data cover a period of twenty-one years, between 1989 and 2009. The choice of this period was informed by macroeconomic reforms, economic boom and the global financial crisis (meltdown).

Many studies have been done in this area, however this study has added to the stock of knowledge with empirical validation from the emerging economies. This study also verifies existing theories on the link between stock markets and economic growth and highlighted the specific roles of major indicators of the capital market, which are relevant in testing the capital market-economic growth linkages. It also deals with issues of unmeasured cross country heterogeneity, causality, dynamics and endogeneity which are elements that have been relatively ignored in the literature of growth modelling; examining the complex linkages between stock market development, institutional bottlenecks and economic growth. The special importance of settling the issue of causality in developing countries also provides policy makers with insights to determine areas of most urgent reform.

2. Literature Review

According to Saint-Paul (1992) in Alovsat (1998), stock exchanges contribute to economic growth through the global risk diversification opportunities they offer. Generally, stock market is expected to accelerate economic growth by providing a boost to domestic savings and increasing the quantity and quality of investment (Singh, 1997). The stock market stimulates economic growth through savings amongst individual, providing avenue for business financing and

efficient allocation of resources in the economy. One of the most fundamental strategies of economic growth is simply to increase the proportion of national income saved. If we can raise savings we can increase the rate of GDP growth (Todaro & Smith, 2009). Foreign direct investment (FDI) is another channel through which foreign technology permeates domestic economy. (Ogunkola, Bankole, & Adewuyi, 2006). The stock market generates efficient information about the performance of firms, reflecting the fundamentals in the real sector. The indicators of the performance of the stock markets are market capitalization, trading value, turnover ratio and many more. In a study by Levine & Zervos (1996) where they used composite index combining volume, liquidity, and diversification indicators for stock exchange and the real growth rate in per capita GDP as economic growth indicator found that a very strong positive correlation exist between stock market development and economic growth.

Some of the studies on the link between stock market development and economic growth include: Korajczyk (1996); Levine & Zervos (1996); Levine & Zervos (1998); Filer *et al* (1999); Rousseau & Wachtel (2000); Beck & Levine (2001); Miner (2003); Rioja & Valev (2004); Caporale, Howell, & Soliman (2004); & N'Zue (2006) amongst others. Filer *et al* finds that an active equity market is an important engine of economic growth in developing countries. When Caporale *et al* (2004) examined the causal link between stock market development, financial development and economic growth in seven countries; they found that a well developed stock market can foster growth in the long-run. Odhiambo (2010) used the Auto-Regressive Distributed Lag (ARDL-Bound) testing approach to relate three proxies of stock market development namely (stock market capitalization, stock market traded value, and stock market turnover) with real GDP per capita, a proxy for economic growth. The result was that causal relationship between stock market development and economic growth is sensitive to the proxy used for measuring the stock market development.

Also, a study conducted in Nepal by Bahadur & Neupane (2006) revealed that the stock market growth and economic growth have long-run relationship. It also revealed that the stock market fluctuation do help to predict the future economy. Osinubi (1998) discovered the contrary, that the effect of stock market on economic growth is weak and insignificant. In a study by Donwa & Odia (2010), they found that market capitalization and value of transaction had positive but insignificant impact on the GDP whereas the total new issues had a negative influence on GDP. Salisu & Ajide (2010) also found that stock market development causes growth as consistent with the findings of Mohtadi & Agarwal (2004), and Oke (2005). They discover that the direction of causality is from market capitalization to economic growth and also that there is no causal linkage between total value traded ratio and economic growth. While a bidirectional causality was found between turnover ratio and economic growth.

Capasso (2006) using a sample of 24 advanced Organization for Economic Cooperation and Development (OECD) and some emerging economies investigates the linkage between stock market development and economic growth covering the period 1988-2002. The finding shows a strong and positive correlation between stock market development and economic growth and later concludes that stock markets tend to emerge and develop only when economies reach a reasonable size and with high level of capital accumulation.

Singh (1997) utilizes time series data for India to examine the relationship between financial development and economic growth for the period 1951-1952 to 1995-1996. Using Bivariate Vector Autoregressive (VAR), impulse responses and variance decomposition, their results suggest the existence of bidirectional Causality between financial development and economic growth.

3. Method and Data

The data set employed in this study consists of annual data from three African countries - Ghana, Kenya and Nigeria. The research variables derived from the literature discussed so far are stock market capitalization, stock turnover ratio, number of listed security, traded value, stock market index, and real gross domestic product. These were used as indicators of the stock market growth, and the proxy for economic growth. The data for the study were sourced from Securities and Exchange Commission's Annual Reports and Statistical Bulletin of Nigeria and Ghana, Capital Market Authority of Kenya, African Securities Exchanges Association's (ASEA) Annual Reports of various years, Data Bank group data base, World Federation Exchange data base, various years annual reports of relevant stock exchanges, World Bank development indicators data set, Central Banks of relevant countries, journals and other publications. The indicators of stock market development used for the test include market capitalization ratio, total value traded, and turnover, number of listed security and stock market index. While the growth rate of gross domestic product was used as a proxy for economic growth.

The model was based on those of past studies; Demirgüç-Kunt & Levine (1996), Levine & Zervos (1996), Demirgüç-Kunt *et al* (1996), Cudi Tuncer & Alovst (2001), Ariyo & Adelegan (2005), Osamwonyi, (2005), Ewah *et al* (2009), Donwa & Odia (2010) who have investigated the linkage between stock market development and economic growth. The model is as follows:

$$\text{GDP} = f(\text{MC}, \text{TVL}, \text{STO}, \text{LS}, \text{MI}) \quad (1)$$

Where:

GDP = Real Gross Domestic Product,

MC = Stock Market Capitalization,

TVL = Value Traded,

STO = Turnover Ratio,

LS = Number of Listed Securities,

MI = Stock Market Index.

$\alpha_0 \dots \alpha_6$ = Parameters

t = Current Period

Model 1

This model specify the equation for Nigeria

$$\text{GDP}_{tN} = \alpha_0 + \alpha_1 \text{GDP}_{t-1} + \alpha_2 \text{MC}_t + \alpha_3 \text{TVL}_t + \alpha_4 \text{STO}_t + \alpha_5 \text{LS}_t + \alpha_6 \text{MI}_t + e \quad (2)$$

The variables and parameter above are defined with regards to Nigeria.

Model 2

$$\text{GDP}_{tG} = \alpha_0 + \alpha_1 \text{GDP}_{t-1} + \alpha_2 \text{MC}_t + \alpha_3 \text{TVL}_t + \alpha_4 \text{STO}_t + \alpha_5 \text{LS}_t + \alpha_6 \text{MI}_t + e \quad (3)$$

Equation (4) refers to Ghana

Model 3

$$\text{GDP}_{tK} = \alpha_0 + \alpha_1 \text{GDP}_{t-1} + \alpha_2 \text{MC}_t + \alpha_3 \text{TVL}_t + \alpha_4 \text{STO}_t + \alpha_5 \text{LS}_t + \alpha_6 \text{MI}_t + e \quad (4)$$

Equation (5) refers to Kenya

In a study by Senbet (2008), which shows that market capitalization and the value of shares traded relative to the size of the economy are the channels through which African Stock Markets influences economic growth, we assumed stock market capitalization as a proxy for stock market indicator and GDP as a proxy for economic growth to conduct the Granger causality test and verify the direction of causality. This we did by relying on two basic equations as given in the models below:

$$\text{GDP}_t = \alpha_0 + \sum_{i=1}^n \alpha_i \text{MC}_{t-1} + \sum_{j=1}^n \beta_j \text{GDP}_{t-1} + U_{1t} \quad (5)$$

$$\text{MC}_t = \lambda_1 + \sum_{i=1}^n \lambda_i \text{MC}_{t-1} + \sum_{j=1}^n \delta_j \text{GDP}_{t-1} + U_{2t} \quad (6)$$

Where MC is a proxy for the variables of stock market development.

Given our hypothesis that “There is no causality relation between stock market development and economic growth”, if $\alpha_0 = \alpha_i = \beta_j = 0$. The direction of causality link between stock market development and economic growth does not flow from stock market development to economic growth and vice versa if $\alpha_1 = \lambda_i = \delta_j = 0$. The *a priori* expectations are: $\alpha_0 \neq 0$ and $\alpha_i, \beta_j, \lambda_i, \delta_j > 0$. If the *a priori* signs which indicate the coefficients of the indicators of stock market are positively related to economic growth, it suggests that an increase in these factors will cause the Real GDP to increase which is a proxy for economic growth. GDP is the dependent variable with others as independent variables. Each of these indicators was tested against GDP to capture their individual effect on economic growth and vice versa. We also considered individual indicators of stock market liquidity. The rationale behind adopting disaggregated indicators was to capture the different effects between stock market development and economic growth more feasibly rather than adopting a single indicator that would focus on a single aspect.

The study adopted tests for Stationarity, Cointegration and Granger Causality test. The time series properties of the data were examined by conducting the test for Stationarity and Cointegration. This was done as a pretest for Granger Causality test. “The test for Cointegration should precede tests of causality” (Gujarati, 2003:793); hence, test for

Cointegration was conducted and also Granger Causality test. The Econometric procedure was conducted using EView 3.1. We estimated the constants of Cointegration using Maximum Likelihood Estimation Technique. We used the Augmented Dickey-Fuller and the Phillip Peron test to determine whether the variables are I (1). The tests for significance of all the parameters were conducted using t-statistics on the first difference. If any of these parameters are not significantly different to zero, the appropriate series (that is, the Independent or the Y series) will be I (1)

The problem of using a pooled data method was that by grouping countries together that are at different stages of financial development, the country specific effects of stock market development on economic growth and vice versa are not addressed. It is well known that Cointegration techniques may not be appropriate when the sample size is too small (Nerayan & Smyth, 2005; Odhiambo, 2009).

4. Results

The data set employed in this study consists of annual data from three African countries – Ghana, Kenya and Nigeria presented in Tables 1, 2, and 3.

Table 1. Stock market development and economic growth indicators for Ghana from 1993 to 2009

YEAR	GDP GROWTH (ANNUAL %)	MC (% OF GDP)	STOCK TRADED (TURNOVER RATIO %)	STOCK TRADED TOTAL VALUE (% OF GDP)	No. of LS	MI
1993	4.9	2	5	0.1	15	132.9
1994	3.3	34.3	7.5	1.4	17	298.1
1995	4.1	25.5	1.3	0.3	19	316.17
1996	4.6	21.5	1.1	0.2	21	360.76
1997	4.2	16.5	3.7	0.7	21	868.35
1998	4.7	18.5	4.8	0.8	21	511.74
1999	4.4	11.9	2.1	0.3	22	736.16
2000	3.7	10.1	1.4	0.2	22	857.98
2001	4	9.9	2.6	0.3	22	955.95
2002	4.5	12	1.8	0.2	24	1395.31
2003	5.2	18.7	4.2	0.6	25	3553.42
2004	5.6	29.8	3.2	0.7	29	6798.46
2005	5.9	15.5	3.2	0.6	30	4769.02
2006	6.4	15.9	2.1	0.3	32	5,006.02
2007	6.5	9.7	3.9	0.4	32	6,599.77
2008	8.4	11.9	5.2	0.5	35	10,431.64
2009	4.7	9.6	2	0.2	35	5,572.64

Source: World Bank National Accounts Data, and OECD National Accounts Data Files, World Development Indicators, African Securities Exchange Association Year Book, Ghana Stock Exchange Annual Reports & Accounts, various years.

Table 2. Stock market development and economic growth indicators for Kenya from 1990 to 2009

YEAR	GDP GROWTH (ANNUAL %)	MC (% OF GDP)	STOCK TRADED TURNOVER RATIO (%)	STOCK TRADED TOTAL VALUE (% OF GDP)	No. of LS	MI
1990	4.2	5.3	2.1	0.1	54	915
1991	1.4	5.6	2.4	0.1	53	958
1992	-0.8	7.7	2.2	0.1	57	1,167
1993	0.4	18.4	1.6	0.2	56	2,514
1994	2.6	43.1	3	0.9	56	4,559
1995	4.4	20.8	2.6	0.7	56	3,469
1996	4.1	15.3	3.6	0.6	56	3,114
1997	0.5	13.9	5.8	0.8	58	3,115
1998	3.3	14.4	4.1	0.6	58	2,962
1999	2.3	10.9	4.3	0.6	57	2,303
2000	0.6	10.1	3.5	0.4	57	1,913
2001	3.8	8.1	3.4	0.3	57	1355

2002	0.5	10.8	2.9	0.3	57	1,087
2003	2.9	28	7.5	1.4	51	1,935
2004	5.1	24.2	8.5	2.1	47	2,640
2005	5.9	34.2	9.8	2.7	47	3,972
2006	6.3	50.6	14.6	5.8	51	4,260
2007	7	49.3	10.6	4.9	51	5,146
2008	1.6	36.4	11.8	4.8	53	5,185
2009	2.6	36.6	4.6	1.7	55	3,294

Source: World Bank National Accounts Data, and OECD National Accounts Data Files, World Development Indicators, African Securities Exchange Association Year Book, Nairobi Stock Exchange Annual Reports & Accounts, various years.

Table 3. Stock market development and economic growth indicators for Nigeria from 1990 to 2009

YEAR	GDP GROWTH (ANNUAL %)	MC (% OF GDP)	STOCK TRADED TURNOVER RATIO (%)	STOCK TRADED TOTAL VALUE (% OF GDP)	No. of LS	MI
1989	7.2	4.2	0.4	0	111	325.3
1990	8.2	4.8	0.9	0	131	513.8
1991	4.8	6.9	0.6	0	142	783
1992	2.9	3.7	0.9	0	153	1,107.60
1993	2.2	4.8	0.9	0	174	1,548.80
1994	0.1	11.5	1	0.1	177	2,205
1995	2.5	7.2	0.6	0	181	5,092.20
1996	4.3	10.1	2.6	0.2	183	6,992.10
1997	2.7	10.1	3.7	0.4	182	6,440.50
1998	1.9	9	4.9	0.5	186	5,716
1999	1.1	8.5	5	0.4	194	5,266.40
2000	5.4	9.2	7.3	0.6	195	8,111.00
2001	3.1	11.3	10.3	1	194	10,963.10
2002	1.5	9.7	8.5	0.8	195	12,137.70
2003	10.3	14	11.3	1.3	200	20,128.90
2004	10.6	16.5	13.9	1.9	207	23,844.50
2005	5.4	17.2	11.5	1.7	214	24,085.80
2006	6.2	22.3	13.6	2.4	202	33,189.30
2007	6.4	52	28.2	10.1	212	57,990.22
2008	6	24	29.3	9.6	213	31,450.78
2009	5.6	19.3	11	2.6	214	26,927.65

Source: World Bank National Accounts Data, and OECD National Accounts Data Files, World Development Indicators, African Securities Exchange Association Year Book, Nigerian Stock Exchange Annual Reports & Accounts, various years.

Unit Root Tests: The null hypothesis of a unit root is not rejected for any of the variables (i.e. all the series are non-stationary at level in Table 4). However, each of the series was stationary in first difference, so all the variables are integrated of order one (I (1)). The time series were made I(0) or stationary by taking their first differences.

Table 4. Results of the unit root tests

Countries	Variables	Lag	ADF	PP	Order of Integration	Remarks
Ghana						
	DY	2		-4.4741**	I(0)	Stationary
	DTR	2		-5.1739***	I(0)	Stationary
	DVT	2	-5.5238***		I(0)	Stationary
	DLS	2		-4.1513**	I(0)	Stationary
Kenya						
	DY	2		-5.3684***	I(0)	Stationary
	DMC	2		-4.0495**	I(0)	Stationary

Nigeria	DTR	2		-4.3011**	I(0)	Stationary
	DLS	3		-6.1823***	I(0)	Stationary
	DY	2		-5.0111***	I(0)	Stationary
	DMC	2		-6.0692***	I(0)	Stationary
	DVT	2	-6.6681***		I(0)	Stationary
	DLS	2		-4.7497***	I(0)	Stationary
	DMI	2		-5.0105***	I(0)	Stationary

Source: EView 3.1 Output.

(***), (**), (*) indicate significant at 1%, 5% and 10% respectively.

D indicates first differencing.

Cointegration Test Results: The Cointegration tests are carried out based on the Johansen (1992) maximum likelihood framework. This was used to investigate long term relationships between stock market development and economic growth. Any equilibrium relationship among a set of non-stationary variables implies that their stochastic trends must be linked (Enders, 2004), in which case they are said to be cointegrated. As Granger have noted that “A test for Cointegration can be thought of as a pre-test to avoid ‘spurious regression’ situations” (Granger, 1986:226). The results are presented in Table 5.

Table 5. Results of cointegration tests

Countries	Hypothesized No. of CE(s)	Eigenvalue	Likelihood Ratio	5 Percent Critical Value	1 Percent Critical Value
Ghana					
Series: GDP, LS, STO, TVL.					
	None**	0.961270	83.92719	47.21	54.46
	At most 1	0.814222	35.15994	29.68	35.65
	At most 2	0.416536	9.911895	15.41	20.04
	At most 3	0.114870	1.830319	3.76	6.65
Kenya					
Series: GDP, LS, MC, STO.					
	None**	0.880956	63.28261	47.21	54.46
	At most1	0.592596	24.97395	29.68	35.65
	At most 2	0.268369	8.810851	15.41	20.04
	At most 3	0.162231	3.186237	3.76	6.65
Nigeria					
Series: GDP, LS, MC, MI, STV.					
	None**	0.980553	123.5125	59.46	66.52
	At most1	0.806674	48.65087	39.89	45.58
	At most 2	0.444188	17.42670	24.31	29.75
	At most 3	0.275310	6.267524	12.53	16.31
	At most 4	0.007828	0.149321	3.84	6.51

Source: EView 3.1 Output.

*(**) denotes rejection of the hypothesis at 5 % (1%) significance level

L.R. test indicates 2 cointegrating equation(s) at 5% significance level for Ghana

L.R. test indicates 1 cointegrating equation(s) at 5% significance level for Kenya

L.R. test indicates 2 cointegrating equation(s) at 5% significance level for Nigeria

Critical Values are given by Osterwald-Lenum (1992) not those tabulated in Johansen and Juselius (1990).

The estimated normalized cointegrating vectors was $r = 2$ for Ghana, $r = 1$ for Kenya, and $r = 2$ for Nigeria as reported in the Table 6. In general, these cointegrating vectors do not have direct structural interpretations being arbitrary linear combinations of the underlying structural equilibrium relationships. However, vector 2 clearly links GDP and LS with the same unit coefficients apparent in vector 1 and 2 and also for Kenya and Nigeria at vector 2 and 3 where GDP and LS have the same unit coefficient. For the reported number of cointegrating vectors, hence we reject the null

hypothesis of no cointegrating vector and accept that there exist a cointegrating relation between LS and GDP and that there is long run relationship between the two variables. The normalized cointegrating equation can be written as:

For Ghana: $GDP - 0.012LS - 0.29STO + 13.89TVL - 30.79$

For Kenya: $GDP - 0.05LS + 0.03MC + 0.37STO + 2.79$

For Nigeria: $GDP + 13.49LS - 204.27MC - 0.18MI + 5715.51STV$

Table 6. Estimated cointegrating vectors (normalized results based on the Johansen Likelihood Procedure)

Countries	Variables	Vector 1	Vector 2	Vector 3	Vector 4
Ghana	GDP	1.000000	1.000000	1.000000	
	LS	-0.012421	1.000000	0.000000	
	STO	-0.699771	-0.703439	0.000000	
	TVL	1.159031	1.331509	0.897869	
	Log Likelihood	-1.934977	10.68905	14.72984	
	C	-3.060868	-3.443394	-5.482268	
Kenya	GDP	1.000000	1.000000	1.000000	
	LS	-0.054551	0.000000	0.000000	
	MC	-0.027001	-0.019563	0.000000	
	STO	-0.372162	-0.355069	-0.421567	
	Log Likelihood	-159.9265	-151.8450	-149.0327	
	C	2.796392	-0.430634	-0.489767	
Nigeria	GDP	1.000000	1.000000	1.000000	1.000000
	LS	13.49130	0.000000	0.000000	0.000000
	MC	-204.2669	0.140070	0.000000	0.000000
	MI	-0.178605	-0.000503	-0.000263	0.000000
	STV	5715.509	2.429255	-1.185622	-24.28840
	Log Likelihood	-309.9054	-294.2933	-288.7137	-285.6546

Source: EView 3.1 Output

The results show evidences of cointegrating vector in the three models, two cointegrating vector for Ghana, one for Kenya and two for Nigeria. These show that the stock market growth and economic growth have long-run, or equilibrium relationships as revealed by the cointegrating vectors. It shows that the stock market fluctuations do help to predict the economy fundamentals. The findings are consistent with existing theoretical underpinnings as illustrated by rational expectations hypothesis and wealth effect, it is also in consonance with the findings of Rousseau & Wachtel (2000), and Adjasi & Biekpe (2005). To check the stability of our model, we conducted Cumulative Sum of Recursive Residuals (**CUSUM**). This revealed that all the critical bounds remain within the 5% significance level.

Granger-Causality Test: The essence of the study is to examine the causal linkage between stock market development and economic growth using data from Ghana, Kenya and Nigeria.

Table 7. Results of granger-causality test

Countries	Null Hypothesis	Obs	F-Statistic	Probability	Causality
Ghana	LS does not Granger Cause GDP	15	2.67264	0.11752	No
	GDP does not Granger Cause LS		0.05938	0.94267	No
	STO does not Granger Cause GDP	15	0.44355	0.65379	No
	GDP does not Granger Cause STO		1.08538	0.37447	No
	TVL does not Granger Cause GDP	15	0.19568	0.82535	No
	GDP does not Granger Cause TVL		0.18132	0.83685	No
	STO does not Granger Cause LS	15	0.68270	0.52732	No
	LS does not Granger Cause STO		0.80795	0.47286	No
	TVL does not Granger Cause LS	15	0.58184	0.57672	No
	LS does not Granger Cause TVL		0.26252	0.77425	No

Kenya	TVL does not Granger Cause STO	15	0.01478	0.98535	No
	STO does not Granger Cause TVL		2.45607	0.13561	No
	LS does not Granger Cause GDP	19	3.46607	0.08111	Yes
	GDP does not Granger Cause LS		0.36624	0.55355	No
	MC does not Granger Cause GDP	19	5.70614	0.02957	Yes
	GDP does not Granger Cause MC		0.20355	0.65793	No
	STO does not Granger Cause GDP	19	4.43632	0.05156	Yes
	GDP does not Granger Cause STO		4.45081	0.05099	Yes
	MC does not Granger Cause LS	19	0.02644	0.87286	No
	LS does not Granger Cause MC		3.57150	0.07704	Yes
	STO does not Granger Cause LS	19	0.00869	0.92690	No
Nigeria	LS does not Granger Cause STO		7.28895	0.01578	Yes
	STO does not Granger Cause MC	19	1.68173	0.21309	No
	MC does not Granger Cause STO		0.23102	0.63727	No
	LS does not Granger Cause GDP	19	1.19851	0.33078	No
	GDP does not Granger Cause LS		0.75643	0.48759	No
	MC does not Granger Cause GDP	19	0.64546	0.53934	No
	GDP does not Granger Cause MC		0.31499	0.73484	No
	MI does not Granger Cause GDP	19	1.22976	0.32209	No
	GDP does not Granger Cause MI		0.07261	0.93031	No
	STV does not Granger Cause GDP	19	0.41071	0.67091	No
	GDP does not Granger Cause STV		0.27447	0.76397	No
MC does not Granger Cause LS	19	0.40437	0.67091	No	
LS does not Granger Cause MC		2.52038	0.11617	No	
MI does not Granger Cause LS	19	0.97264	0.40223	No	
LS does not Granger Cause MI		3.50626	0.05828	No	
STV does not Granger Cause LS	19	0.55844	0.58433	No	
LS does not Granger Cause STV		3.62272	0.05396	No	

Source: EView 3.1 Output.

From the results in Table 7 the Granger Causality test carried out on GDP and LS are not statistically significant at the 5 percent level, leading to the acceptance of two null hypotheses that LS does not Granger Cause GDP and that GDP does not Granger Cause LS. This suggests that there is no causal link between GDP and LS in Ghana. The probability value of the causal links between GDP and STO were not statistically significant showing that there is also no causal link between GDP and STO and also GDP and TVL. The summary of the general result for Ghana indicate non-existence of causal relationship between the indicators of stock market performance and the proxy for economic growth. This supports the findings of studies by Adjasi (2007) and Sililo (2010). This was found to be in consonance with the Independent Hypothesis which argued that financial and economic growth is not causally related. This is also supported by Mazur and Alexander (2001).

The results obtained from Granger Causality test revealed that there is a causal link between stock market development and economic growth for the Kenyan economy. The F-value for causality running from LS to GDP which is 3.47 is not significant at 5% level but significant at 10% level. This shows a weak causality link, but the reverse causality (GDP to LS) was not significant. The F-value for MC to GDP is 5.71; this is statistically significant at 5% level leading to a rejection of the null hypothesis that MC does not Granger Cause GDP. The F-value for STO to GDP is 4.43 and GDP to STO is 4.45, this is found to be statistically significant leading to a rejection of the null hypothesis that STO does not Granger Cause GDP and GDP does not Granger Cause STO. We therefore accept bidirectional causality between stock market development and economic growth for the Kenyan economy. This supports Patrick's (1966), Cudi Tuncer & Alovsat (2001), Mohtadi and Agarwal (2004), Rousseau & Wachtel (2000) and Filer *et al.* (1999) findings that there is a two-way causation between financial and economic variables.

The Granger Causality test for the Nigerian economy revealed that there is no causal link between the indicators of stock market performance and the proxy for economic growth at 5% and 10% level of significance. All the probability values were not significant, hence the acceptance of the hypothesis; this contradicts the findings of Afees *et al.* (2010), and confirms but in consonance with the findings of Azarmi *et al.* (2005). In general, it was found that there was no

causality linkage between stock market development and economic growth in the Ghanaian and Nigerian economy, but there was a bidirectional causal link between stock market development variables and the variable of economic growth in the Kenyan economy. It therefore behooves the policy makers to strengthen efforts towards improving the capital market.

Analysis of the Regression Results: These are obtained using the Ordinary Least Square (OLS) technique since the variables are stationary and integrated at the same order of integration. The results are in Table 8.

Table 8. The relationships between stock market development and economic growth of Ghana, Kenya and Nigeria

Ghana					
<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Estimated Coefficients</i>	<i>Standard Errors</i>	<i>t-statistic</i>	Probability Value
GDP	C	-0.5304	1.0775	-0.4923	0.6314
	LS	0.1656	0.0287	5.7666	0.0001
	MC	0.0633	0.0423	1.4982	0.1599
	STO	0.6609	0.0423	1.4982	0.1599
	TVL	-3.7822	1.5618	-2.4217	0.0322
$R^2 = 0.77$, $\bar{R}^2 = 0.69$, DW stat. = 1.69, F-stat. = 10.17					
Kenya					
<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Estimated Coefficients</i>	<i>Standard Errors</i>	<i>t-statistic</i>	Probability Value
GDP	C	17.5711	9.1904	1.9119	0.0740
	LS	-0.2893	0.1586	-1.8245	0.0868
	MC	0.0413	0.0403	1.0236	0.3213
	STO	0.0318	0.1847	0.1720	0.8656
$R^2 = 0.48$, $\bar{R}^2 = 0.38$, DW stat. = 1.87, F-stat. = 4.83					
Nigeria					
<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Estimated Coefficients</i>	<i>Standard Errors</i>	<i>t-statistic</i>	Probability Value
GDP	C	17.6941	4.3086	4.1067	0.0008
	LS	-0.0746	0.0245	-3.0464	0.0077
	MC	-0.4711	0.1708	-2.7679	0.0137
	MI	0.0005	0.0001	4.0747	0.0009
	STV	-0.1049	0.3564	-0.2946	0.7721
$R^2 = 0.57$, $\bar{R}^2 = 0.46$, DW stat. = 1.96, F-stat. = 5.28					

Source: EView 3.1 Output.

The results for Ghana revealed that the model explains approximately 77% of the systematic variation in the level of economic growth in Ghana between 1993 and 2009. These imply that the independent variables included in the model namely: LS, MC, STO and TVL accounted for 77% of the total adjusted variation in the level of economic growth in Ghana. In relation to statistical significance of each of the explanatory variables LS, STO and TVL were found to be statistically significant at the conventional level of significance (1%, 5% and 10%). TVL had a negative effect on GDP. The coefficient of the regression results were found to follow the *a priori* expectation except TVL that do not exhibit a positive sign indicating a negative effect on GDP. While others impacted positively on GDP. The F-value and Durbin-Watson (DW) statistic further confirm the statistical reliability and desirability of the estimation as there is no evidence of serial correlation

The regression results for the Kenyan economy revealed that 47% of the systematic variations in GDP were explained by these explanatory variables: LS, MC and STO. This shows the weakness of the model in explaining the relationship between stock market and economic growth in Kenya. This is further confirmed by a low value of F-statistic of 4.83 which is not significant at 1% level but significant at 5% level. However, an examination of the t-statistics for the different variables revealed thus: MC, STO and LS had t-value of 1.02, 0.17 and -1.82 that were not significant. The signs show that LS has negative impact on GDP and LS do not conform to the *a priori* expectations though there is no presence of autocorrelation. The result therefore revealed that in the Kenyan economy stock market has not significantly contributed to the growth of GDP. Hence the call on the part of Capital Market Authority (CMA) to intensify effort to improve the capital market activities.

The Regression result of Nigeria revealed that the explanatory variables: LS, MC, MI and STV together explained 56% of the variation in GDP. This does not indicate a very good fit. The F-statistic was found to have weak statistical significance. A Durbin-Watson statistic value of 1.96 shows the absence of serial correlation. The explanatory variables have significant t-values at 1% level except STV which shows a negative effect on GDP. Only MI conforms to *a priori* expectation of a positive sign. In general, the analysis revealed that the impact of stock market is not pronounced on the growth of the economy.

The Regression Results of the Pooled Least Square:

Table 9. The regression results of the pooled least square

<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Estimated Coefficients</i>	<i>Standard Errors</i>	<i>t-statistic</i>	Probability Value
GDP	C	3.2649	0.8953	3.6466	0.0007
	MC?	0.0246	0.0369	0.6667	0.5084
	LS?	-0.0156	0.0055	-2.8194	0.0071
	MI?	0.0001	5.26E-05	2.4909	0.0165
	STO?	0.3656	0.1669	2.1893	0.0338
	STV	-1.0024	0.4486	-2.2344	0.0305
$R^2 = 0.37$, $\bar{R}^2 = 0.29$, DW stat. = 1.47, F-stat. = 5.19					

Source: EView 3.1 Output.

The results in table 9 reveal that in the three countries, indicators of stock market performance weakly accounted for its contribution to economic growth. Approximately 37% of the systematic variations in the three countries GDP put together are explained by the five variables used. All the coefficients of these variables are correctly signed except LS and TVL. The t-values were statistically significant at 5% level of significance except market capitalization. The F-value of 5.19 is significant at the 1% and 5% level of significance. This suggests a linear relationship between the regressors and the regressand. The DW statistic of 1.48 implies some presence of positive serial correlation.

A Cross Section Analysis of the Three Countries: The fixed effect of the cross sectional analysis in Table 10 reveals that the three countries have a common intercept.

Table 10. Relationship between GDP and stock market performance indicators for Ghana, Kenya and Nigeria (1993-2009)

<i>Dependent Variables</i>	<i>Independent Variables</i>	<i>Estimated Coefficients</i>	<i>Standard Errors</i>	<i>t-statistic</i>	Probability Value
GDP	MC?	0.0011	0.0221	0.0517	0.9590
	LS?	0.0547	0.0433	1.2621	0.2137
	MI?	0.0002	7.45E-05	2.1767	0.0350
	STO?	0.2241	0.1144	1.9578	0.0568
	STV	0.8517	0.3808	-2.2366	0.0306
	Fixed Effects				
	GHA-C	2.8253			
	KEN-C	-0.2359			
	NIG-C	-9.4434			
$R^2 = 0.92$, $\bar{R}^2 = 0.91$, DW stat. = 1.65, F-stat. = 123.41					

Source: EView 3.1 Output.

The weighted statistics of the regression results revealed that about 92% of the systematic variations in GDP were accounted for by the indicators of stock market development of the three countries combined. This shows a highly good fit of the estimated equation, this is further reinforced by an F value of 123.41. This shows that consolidation of African Stock market will enhance its impact on the African economy. The entire variable revealed significant t-value at 5% and 10% level except market capitalization and Number of Listed Securities. The DW-statistic of 1.7 tends to show absence of serial correlation. The coefficient of STV reveals a negative impact on GDP.

Discussion of Findings. The results are discussed as follows:

1). That in Ghana and Nigeria, there is no causality link between stock market development and economic growth; but in the Kenyan economy, there is bidirectional causality between stock market developments and economic growth. A possible explanation may be that the stock markets in Ghana and Nigeria do not have adequate representation of the

major contributors to the GDP such as agriculture and the extractive sector. However, in Kenya, agricultural firms constitute the major drivers of the capital market.

2). In the Kenyan economy where stock market development was found to Granger-cause economic growth, the direction of causality was found to be running from stock market indicators to economic growth and also from the proxy of economic growth to stock market development.

3). In the pooled data, there is a weak relationship between stock market development and economic growth. That is, the combined data of the stock markets of the three economies do not have significant effect on the combined economy. Hence, it may be said that stock markets in West Africa and East Africa in particular, and Africa in general have not contributed significantly to the growth of the African economy.

The implications of the findings of the study is that the supposed effect of the stock markets on the growth of the economies of Ghana and Nigeria has been hampered by the factors mitigating against the ability of these countries stock markets to attract considerable level of investments and maintain investors confidence, especially the delink between the stock market and the sectors that dominate the GDP. It also implied that the pockets of reforms over the years were not religiously followed. The channels for transmission between the surplus unit and the real sector of these economies has suffered regulatory and supervisory bottlenecks (institutional qualities), exposure to external shocks and such menace known to be major obstacles confronting Africa's institutional development.

Overtimes, positive reforms that could lead to growth are always short-lived thereby recording only a short term effect on these economies. Though the stock markets in these economies have witnessed tremendous changes over the years but the effects of these changes are always short lived as factors such as low level of public awareness and participation, failure of corporate governance, market malfeasances and policy inconsistencies still ravage the stock markets of these economies.

5. Conclusion

Undoubtedly, the presence of stock market should increase the amount of capital stock available for investment. This is expected to enhance the performance of the economy. However, African stock market has been plagued by a plethora of bottlenecks and drawbacks institutionally, structurally, and otherwise. A skewing phenomenon has been the nature of African stock market and the economy.

In conclusion, the nature of stock markets and the economies in Africa revealed the reasons for non-causal relationships between stock markets and economic growth in Ghana and Nigeria. The problem of African stock markets is the domination by a single sector, and the often monoprodukt economy. Often, the stocks of this sector that account for the greater percent of the GDP are not listed in the domestic stock market, hence, a divorce between the actual performance of the stock market and economic growth. In Ghana, only AngloGold Ashanti, accounts for 70% of market capitalization (Osaze, 2007) while in Nigeria, over 60% of the total market capitalization is accounted for by the Banking sector. The oil and gas sector of the economy of Nigeria and the agricultural sector (cocoa) of that of Ghana are not in their stock markets.

The following recommendations are made:

The findings are inconsistent with those of previous studies such as Levine (2005) and Afees (2010). This implied that stock markets in Africa are inefficient in allocating resources to the real sectors of the economy for productive ventures that can lead to economic growth. This therefore calls for a much needed effort on the part of policy maker and regulatory bodies to improve the efficiency of the stock markets. The government (policy making body) and regulatory bodies should encourage companies operating in the domestic economy to be listed on the domestic stock exchanges. The regulatory bodies should remove impediments to listing and increase its public awareness campaign through every trading floor of the exchanges and capital trading points.

That the government and regulatory agencies should formulate and implement policies that will 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.

The government and the self-regulatory organizations should create and ensure strong, more transparent institutional and legal framework and should also encourage investment in human resources to bring about efficiency of the stock exchanges and their auxiliary (support) services in efficiently allocating the available financial resources for investment purpose and also creating the platform that will engender best corporate practice which will result in growing investment, increased confidence in the financial system and further growth of the economy.

That there should be an improvement in financial infrastructures and increased varieties of financial products and services which has been a major hindrance affecting the pace of investment growth in Africa when compared to developed countries. This is to allow for efficient flow of information and ensure various sources of finance.

Policies and aids should be directed at a more vibrant equity market which is an important engine of economic growth in developing countries. The government should ensure a stable macroeconomic environment for businesses to thrive.

The various economies under study should diversify their economy instead of over reliance on a single sector of the economy and also encourage investment into those sectors of the economy that have direct linkages with economic growth and are considered fundamental to the growth of the economy such as the agricultural sector, construction and manufacturing sector.

Seeing that the higher the level of investment the higher the level of economic growth, keeping cost of doing businesses low and strengthening the infrastructure will increase investment, hence economic growth.

Stock markets in Africa tend to be small and fragmented. Regional integration could contribute to more efficient capital markets; though, there have been limited intra-regional trade, underdeveloped financial infrastructure and lack of regulatory capacities remains major problems. In order to compensate for these shortcomings, regional integration of the stock markets can be useful, particularly in terms of economies of scale. A strong financial institutions and efficient capital market which is essential to increase investment opportunity for both domestic and foreign investors should be encouraged.

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