

Investigating the Nexus between Stock Exchange and Economic Growth in Ghana

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Abstract

This study used ARDL model coupled with granger causality test to investigate the relationship between stock market development and economic growth in Ghana for the period from 1991 to 2011. The study revealed that stock market development has a negative impact on economic growth in the long-run and this was confirmed by the causality test that there do not exist any relationship between stock market development and economic growth in Ghana for the study period. Human capital and money supply have contributed positively to growth. Inflation and foreign direct investment have not shown to be deterministic variables to growth of the economy. The study concluded that operators of Ghana Stock Exchange should strategise well to attract more investors to the Stock Exchange. In addition, the independence of the Central Bank, further development of financial and money markets should be adhered to by the Bank of Ghana to facilitate the implementation of monetary policy in order to achieve price stability in the country.

Keywords: Stock market development, economic growth, human capital, inflation, money supply, foreign direct investment.

1. INTRODUCTION

Stock markets in Africa are developing rapidly, although most of them are still immature and trading occurs in only a few stocks which account for a considerable part of the total market capitalization. Beyond these actively traded shares, there are serious informational and disclosure deficiencies for other stocks. Further, supervision by regulatory authorities is often far from adequate.

Ghana reformed its economy in 1983–1986 under World Bank/IMF programme. As part of the reforms, the Ghana Stock Exchange (GSE) was incorporated as a private company limited by guarantee under the Companies Code of 1963 in July 1989. It was given recognition as an authorized stock exchange under the Stock Exchange Act of 1971 (Act 384) in October 1990 and started trading with 11 listed companies on November 12, 1990. The Exchange went public in April 1994. The Ghana Stock Exchange currently has 36 listed companies most of which are Ghanaians and 2 corporate bonds.

In 1993, the GSE was the sixth best index performing emerging stock market, with a capital appreciation of 116%. In 1994, the GSE index performed well and gained 124.3% in its index level and market size (market capitalisation expressed as a percentage of GDP) was 34.37. It dropped to 25.53 in 1995 when the performance of the market was bad due to high inflation and interest rates. Market size had a continuous decline to 9.93 in 2001 and picked up again to 29.79 in 2004. The Ghana Stock Exchange was adjudged the best in Africa and among the very top performers worldwide in 2008 in the face of global economic recession and its effects on capital markets. It was again adjudged the “Most Innovative African Stock Exchange for 2010” at the Africa investor (Ai) prestigious annual Index Series

Awards held at the New York Stock Exchange (NYSE) in September 2010. The performance of the stock market seems to have a relationship with the growth of the economy.

However, many studies hold divergence views on the relationship between the development of stock exchange market and economic growth. Some growth models do not consider finance as an important ingredient in economic growth. For instance, the study of Lucas (1988) asserts that literature on growth over-stressed the importance of finance on economic growth. Similarly, Meier and Seers (1984) do not discuss finance at all in their study. The conclusions of studies like Stiglitz (1985) and Singh (1997) favour the banks' role in the growth process rather than the stock market. On the contrary, the view of many experts stresses that stock market occupies the central and strategic position in the process of economic development of a country. Miller (1998) noted that financial markets contribute to economic growth and needed to be discussed seriously.

Levine and Zervos (1998) stress that stock markets provide an avenue for growing companies to raise capital at lower cost. They concluded inter alia that, companies in countries with developed stock markets are less dependent on bank financing and can reduce the risk of a credit crunch. Here, stock markets can therefore be looked at as having a positive influence on economic growth through encouraging savings amongst individuals and providing avenues for firm financing. Other researchers like Greenwood and Smith (1997), Bencivenga *et al.* (1996), Levine (1991), Morck and Nakamura (2000), Allen and Gale (2000) and Capasso (2008) have also reported that stock market development boost economic growth. In addition, other studies like Rousseau and Wachtel (2000), Beck and Levine (2003) show that stock market development is strongly correlated with growth rates of real GDP per capita. From another perspective, Boyd and Smith (1998) and Blackburn *et al.* (2005) have all shown that both stock markets and banks are necessary in promoting economic growth. Therefore, they consider stock markets as complementing banks rather than being substitutes. The different conclusions of these theoretical and empirical studies provide the basis for a further empirical investigation on the relationship between stock market development and economic growth.

Indeed, the studies discussed above have been conducted mostly in developed economies and to a lesser extent in middle income countries. It appears there are different findings on the link between stock markets and growth. However, it was found in the review of literature that, studies that investigate the nexus between stock markets and economic growth in Sub Saharan African (SSA) are very scarce and the outcomes of the studies on developed countries cannot be easily infer to SSA countries due to differences in economic structures. Therefore, further studies need to be conducted in order to unearth the link between stock markets and growth using data from Ghana.

In addition, considering the success chopped by the Ghana Stock Exchange Market since its inception, it is imperative that studies be conducted to ascertain the precise link between stock market development and the growth of the economy. This paper therefore seeks to assess the causal relationship between stock market development and economic growth in Ghana.

2. RELATED LITERATURE REVIEW

Empirical evidences on the relationship between stock market development and economic growth on cross-country and country-specific studies were reviewed in graphic details under this section. Dritsaki and Dritsaki-Bargiota (2004) used a tri-variate VAR model to examine the causal relationship between stock market, credit market and economic growth for Greece by the use of monthly data covering the period 1988:1-2002:12. Their results revealed unidirectional causality from economic growth to stock market and bidirectional causality between economic growth and the banking sector.

Surya and Neupane (2006) also examined the existence of causality between stock market and economic growth in Nepal. The study revealed a long-run integration and causality between stock market

indicators and macroeconomic variables. Ahmed et al (2008) in a study of Pakistan economy found bi-directional causal relationship and a long-run relationship between stock market development and economic growth.

Yartey and Adjasi (2007) used the Generalized Method of Moments and dynamic instrumental variable modelling approach to investigate the importance of stock market development in Africa. Their results show that stock market has contributed to the financing of the growth of large corporation in certain African countries. However, their econometric investigation into the impact of growth in selected African countries finds inconclusive evidence even though stock market value traded seem to be positively and significantly associated with growth.

Baboo and Odit (2009) examined the impact of stock market development on growth in Mauritius. A time series econometric investigation is conducted over the period 1989 -2006. The short run and long run relationship is analysed by constructing an ECM. Two measures of stock market development namely size and liquidity are used. The study finds that stock market development positively affect economic growth in Mauritius both in the short run and long run.

Osuala, Okereke and Nwansi (2013) used Granger causality test to determine the relationship between stock market performance and economic growth in Nigeria. Time series data on economic growth was proxied by Gross Domestic Product and market capitalization, turnover ratio, and total number of deals ratio were used as stock market performance indicators. Their conclusion was that there was an empirical evidence of long-run cointegration between economic growth and stock market performance. In addition, a unidirectional causality was established from stock market performance indicators to GDP in the long-run. There was no causal relationship between economic growth and stock market performance in the short-run.

Zivengwa et al. (2011) also researched into the casual link between stock market development and economic growth in Zimbabwe using annual time series data for the period 1980 to 2008. Stock market size as measured by stock market capitalization as a ratio of GDP and stock market turnover as measured by the value of stocks traded as a ratio of stock market capitalization were used as measure of stock market development. They employed the Unit Root Tests, Vector Autoregressive (VAR) and Granger Causality to conduct their research. The empirical studies showed a unidirectional causal link that runs from stock market development to economic growth.

Nzue (2006) also investigated the relationship between the development of the Ivorian stock market and the country's economic performance. His empirical results suggest that gross domestic product and stock market development are cointegrated and there is a long-run relationship between these variables taken together. The result also indicate a unidirectional causality running from stock market development to economic growth

Osei (2005) used the Granger causality test to research into the relationship between stock market and economic growth in Ghana. He found a unidirectional causality from the stock market performance to economic growth. He attributed the non-availability of a reverse causality to the low level of income as evidenced in majority of developing countries.

Quaidoo (2011) also researched into the relationship between stock market capitalization and economic growth in Ghana using quarterly time series data from 1991 to 2006. The study employed Johansen multivariate co-integration technique and vector error correction model to investigate the long-run relationship and the short-run dynamics among the variables. Also, the standard Granger-causality test was conducted to determine the causal relationship between the variables. The study finds that real economic growth, real stock market liquidity and real gross domestic investment impact positively on the development of the Ghana Stock Exchange. Interestingly, the study revealed that the banking sector development and the

stock market development are substitutes in financing corporate investments in Ghana due to their significant negative relationship.

It can be deduced from the reviews of literature that, there exist different views on the relationship between stock market development and economic growth. Studies such as Levine and Zervos (1998), Greenwood and Smith (1997), Bencivenga *et al.* (1996), Levine (1991), Beck and Levine (2003), Baboo and Odit (2009), Morck and Nakuruma (1999), among others have shown that stock market development and economic growth are strongly correlated. However, the study of Harris (1997) found this relationship to be weak and concluded that the development of stock market cannot offer much incremental explanatory power to changes in economic growth. Demirguc-Kunt and Levine (1996) also questioned the contribution of stock market to long-term economic growth. Nyong (1997) also found that stock market development is negatively and significantly correlation with long-run growth in Nigeria.

From another perspective, studies such as Osei (2005), Nzue (2006), Zivengwa *et al* (2011) *inter alia*, delved into the causal relationship between stock market development and economic growth and found a unidirectional causality running from stock market development to economic growth. Osuala, Okereke and Nwansi (2013) and Ahmed *et al* (2008) contrary found a bi-directional causal relationship and a long-run relationship between stock market development and economic growth.

From these diverse findings and conclusions about the relationship between stock market and economic growth, the nexus between stock market development and economic growth becomes fundamentally an empirical one. This study is therefore important to unearth the exact relationships between the Ghana Stock Exchange and economic growth of the country.

3. STUDY METHODOLOGY

3.1 Model Specification

For the empirical analysis of the nexus between stock market development and economic growth in Ghana, the study followed Baboo and Odit (2009) approach in assessing the effects of stock exchange market on economic growth. Their model is specified in a more general form as;

$$Y_t = f(FDI_t, HUMAN_t, SMD_t), \dots \dots \dots 3.1$$

where Y_t denotes real GDP; FDI indicates foreign direct investment, HUMAN denotes human capital and SMD represents stock market development.

An econometric model in its reduced form logarithm equation is written as:

$$\ln Y_t = \beta_0 + \beta_1 \ln FDI_t + \beta_2 \ln HUMAN_t + \beta_3 \ln SMD_t + U_t \dots \dots \dots 3.2$$

This model is modified to encompass other variables that have effects on economic growth in Ghana. The modified form is written as:

$$\ln GDP_t = \beta_0 + \beta_1 \ln FDI_t + \beta_2 \ln HUM_t + \beta_3 \ln MC_t + \beta_4 \ln MS_t + \beta_5 \ln INFL_t + \varepsilon \dots \dots 3.3$$

Where GDP is proxied for economic growth; FDI represents foreign direct investment; HUM denotes Human capital, and MC is index of stock market development. MS designates money supply and INFL also represents the inflation rate. ε is the idiosyncratic error term which is identically and independently distributed.

3.2 Data Sources and Expected Signs

Secondary data on the selected variables from 1991 to 2011 were used for the study. Based on the theoretical and empirical literature reviewed in the previous section, the variables to feature in the models above for this paper are described in the Table 1 below:

Table 1: Data Sources and Expected Signs

Variable	Empirics	Data Source	Expected Signs
GDP	-	GSS, WDI	
FDI	Romer (1990), Firebaugh(1992), and Reis (2001)	WDI	+/-
MC	Miller (1998)	GSE	+
HUMAN	Barro (2001)	MOE, GSS, UNESCO	+
MS	Keynes (1936),	BoG, ISSER	+
INFL	Mundell (1965), Tobin (1965) , Mubarik (2005), Fischer and Modigliani (1978)	GSS, WDI	+/-

3.3 Estimation Techniques

3.3.1 Cointegration Test

After using Dickey-Fuller generalised least square (DF-GLS) test for stationarity of the variables, a test is conducted to enquire if there exist a long-run relationship between the independent variables and the dependent ones. Cointegration is a statistical implication of the existence of a long-run relationship between economic variables. Macroeconomic variables tend to trend up and down over time so cointegration analysis helps researchers to ascertain if there is some tendency for some linear relationships among a set of variables over long periods of time. The study adopted the ARDL approach for testing for cointegration. This approach was preferred because while other cointegration techniques required all of the regressors to be integrated of the same order, the ARDL approach can be applied whether the regressors are $I(1)$ and/or $I(0)$. This means that the ARDL approach avoids the pre-testing problems associated with standard cointegration, which requires that the variables be already classified into $I(1)$ or $I(0)$ (Pesaran et al, 2001). In addition, Ghatak and Siddiki (2001) have suggested that the use of the ARDL model is more appropriate when samples size is small. With the ARDL approach, it is possible to have different variables with different optimal numbers of lags which is not allowed in the Johansen-type models. More specifically, the ARDL cointegration test is based on the following equation

$$\ln\Delta GDP = \alpha + \sum_{i=1}^p \beta_{1i} \Delta FDI_{t-i} + \sum_{j=1}^q \beta_{2j} \Delta \ln HUMAN_{t-j} + \sum_{k=1}^q \beta_{3i} \Delta \ln MC_{t-k} + \sum_{l=1}^q \beta_{4i} \Delta \ln INFL_{t-l} + \sum_{m=1}^q \beta_{5i} \Delta \ln MS_{t-m} \dots \dots \dots 3.4$$

Where, Δ is the first-difference operator. The null hypothesis of no cointegration or no long-run relationship among the variables is:

$$H_0 = Y_1 + Y_2 + Y_3 + Y_4 + Y_5 = 0$$

In testing for cointegration, the cointegration equation is estimated by ordinary least square (OLS) in order to test for the existence or otherwise of a long-run relationship among the variables. This is done by conducting an F-test for the joint significance of the coefficients of lagged levels of the variables. Two asymptotic critical values bounds provide a test for cointegration when the independent variables are $I(d)$ (where $0 \leq d \leq 1$): a lower value assuming the regressors are $I(0)$ and an upper value assuming purely $I(1)$ regressors.

3.3.2 Vector Error Correction Model

Having established that a cointegrating relationship exists among the variables, the error correction methodology is applied by the use of VAR approach to assess the short-run dynamics that are likely to occur in the stock market (Enders, 1995). The orders of the lags in the ARDL model are selected by the Schwarz Bayesian criterion (SBC).

3.3.3 Granger Causality Test

Once cointegration relationship has been established among the variables, the causal relationship between real GDP and stock market development was assessed by the use of the method developed by Granger (1969). The intuition behind it is if previous values of variable X significantly influence current values of variable Y, then one can say that X granger causes Y. This means that X is very useful in predicting Y. This test involves the examination of the statistical significance of the parameters of X and Y.

4. EMPIRICAL RESULTS AND DISCUSSIONS

4.1 Stationarity Analysis of the Variables

Prior to the testing of cointegration, the study employed Dickey-Fuller generalised least square (DF-GLS) detrending test proposed by Elliot et al (1996) to test whether the variables are stationary or non-stationary even though the ARDL framework does not require pre-testing of variables to be done. Results of the unit root tests are presented in Table 2.

Table 2: Unit Root Test (USING DF-GLS TEST)

Variable	DL-GLS				Order of integration
	LEVELS		FIRST DIFFERENCE		
	Constant	Constant + Trend	Constant	Constant + Trend	
<i>lnMC</i>	-2.134**	-2.362	-4.201***	-3.371***	1
<i>lnGDP</i>	-1.378	-3.528**	-3.923***	-5.944***	0
<i>lnINFL</i>	-4.056***	-4.333***	-6.388***	-7.018***	0
<i>lnHUM</i>	-0.173	-2.216	-4.938***	-4.962***	1
<i>lnM2</i>	-1.705*	-1.586	-3.885***	-4.640***	1
<i>lnFDI</i>	-1.691**	-2.638	-4.032***	-4.083***	1

Note: The null hypothesis is that the series is non-stationary, or contains a unit root. ***, **, *denotes the rejection of null hypothesis of unit root at the 1%, 5% and 10% significance levels respectively.

From Table 2, the log level of GDP and inflation are stationary but the values of the test statistics for the other variables both at the constant and constant with trend are less than the critical value of -3 in absolute terms and therefore not stationary. However, they all become stationary at the first difference. This

implies that the variables when used for the regression would not yield spurious results and the values of the statistical tests will be more accurate.

4.2 Test for Cointegration

To examine whether long-run relationship exists between the variables under estimation the Bounds Test Approach to cointegration was used. The Schwarz Information Criterion was used to select the optimal lag length of the ARDL model. The results are presented in Table 3

Table 3: Results of the Bound Test for Cointegration

F-Statistic	95%		90%	
	Lower Bound	Upper Bound	Lower Bound	Upper Bound
21.0200	3.6104	5.3444	2.8521	4.2647

From Table 3, the calculated F-Statistic that the joint hypothesis of the lagged level variables of the coefficients is zero equals 21.0200. This figure is greater than the upper bound of the critical values of the conventional levels at 10% (4.2647) and at 5% (5.3444). The implication here is that the joint null hypothesis of all the lagged level variables of the coefficients being zero is rejected even at 5%. This suggests that there is cointegration between Economic growth (Real GDP) and the independent variables and this confirms further a long run relationship between Real GDP and the independent variables.

4.3 Long Run Equation Results

The Autoregressive Distributed Lag (ARDL) model was used to estimate the cointegration regression. The results are presented in Table 4.

Table 4: Estimated Long Run Coefficients using the ARDL Approach

ARDL (1,1,1,1,1,1) selected based on Schwarz Bayesian Criterion
 Dependent variable is **LNGDP**.20 observations used for estimation from 1992 to 2011

Regressor	Coefficient	Standard Error	T-Ratio	Prob.
lnFDI	0.0039400	0.014177	2.7791	0.787
lnHUM	0.34417	0.094218	3.6529	0.005
lnINFL	0.0088753	0.014479	0.61298	0.555
lnM2	0.10751	0.010988	9.7844	0.000
lnMC	-0.026453	0.0090421	-2.9255	0.017
Constant	9.0300	0.11593	77.8898	0.000

The study estimated a growth equation with stock market development indicator-market capitalisation. The coefficient of foreign direct investment (FDI) is positive but not significant. Although this result conforms to the theoretical studies conducted by Lucas (1988), Barro (1990), Barrel and Pain (1997) and Romer (1990) by the use of "endogenous" growth models, it is not in the capacity to explain the changes in economic growth in the country. This result is however not quite different from that of the empirical studies of Reis (2001), and Firebaugh (1992) on the actual effects of FDI on economic growth especially when profits are often repatriated. This could possibly be attributed to the sectoral distribution

of FDI in the country. Ghana received a cumulative amount of USD 14,250.65 million from September 1994 to December 2010. Out of this amount, only USD 678.96 representing 4.76% according to ISSER (2010) was invested in the agricultural sector which is supposed to be one of the main contributors to GDP.

Human capital has a positive and significant long run effect on growth. When school attainment increases by one percentage, real GDP increases by 0.34%. This confirms many theoretical studies such as Benhabib and Spiegel (1994); Islam (1995); Barro and Sala-i-Martin (1995); Barro (2001); Krueger and Lindahl (2001). Some empirical studies like Wei (2001), and Földvári and Van Leeuwen (2005) have also found human capital to impact positively on economic growth in the various countries they have studied.

Inflation is positive but does not seem to have significant effect on long-run growth. This may be attributed to the argument of Mundell (1965) and Tobin (1965) that money and capital are substitutable so inflation would rather increase savings by shifting portfolio from money to capital formation and thus faster output growth. Sweidan (2004) concluded that there is a certain threshold level beyond which the effect of inflation on economic growth turns to be negative and Frimpong and Oteng-Abayie (2010) set an inflation threshold of 11% for the case of Ghana. Inflation rate in the country for the study period has fluctuated between 59.46% in 1995 and 8.75% in 2011. Policy makers embarked on contractionary measures in order to reduce inflation to meet the convergence criteria set for the ECO zone especially in the early 2000. This could possibly explain how the economy has operated with the threshold and therefore the positive effect.

Consistent with theory, money supply has a positive and significant impact on economic growth in Ghana. With a percentage increase in money supply, economic growth increases by 0.11%. Keynes argues that increases in money supply reduce interest rate which increases investment and economic growth.

Contrarily to theory, the results show that the long run relationship between economic growth and market capitalisation in Ghana has been negative but significant for the study period. With a percentage increase in market capitalisation, economic growth reduces by 0.3%. This could be explained from the fact that though the Ghana Stock Exchange has made some strides internationally, the effect on long-run economic growth in Ghana has been superficial. It therefore follows that stock market development in Ghana has not demonstrated to be an important ingredient to economic growth in the long run. This finding reiterated the conclusion of Demirguc-Kunt and Levine (1996), who questioned the contribution of stock market to long-term economic growth. Harris (1997) sampled forty-nine countries and found the relationship between stock market development and economic growth to be weak. Nyong (1997) also found that stock market development is negatively and significantly correlated with long-run growth in Nigeria.

The negative relationship could possibly be attributed to three factors namely: misspecification in terms of omitted variables, multicollinearity and sample size factor. If the negative relationship is possibly caused by omitted variables then the results could be biased so factors like interest rate, gross fixed capital formation, and credit to the private were introduced into the model with the view to finding a solution to the negative relationship between market capitalisation and economic growth but to no avail. Correlation coefficients were run for the independent variables to find out if multicollinearity exists between them. The coefficient between human capital and market capitalisation was found to be 0.7664 which was the highest and the lowest 0.0090 was found between inflation and foreign direct investment. Since these coefficients do not exceed the 0.8 threshold, multicollinearity did not present a problem as per the correlation coefficient matrix. The sample size of twenty-one years with the parameters set at six inclusive of the constant term generated fifteen degrees of freedom which is considered small. It is possible that if a quarterly data had been used for estimating the model, the theoretically inconsistent

relationship between market capitalisation and economic growth could have been resolved but then this may have to be tested empirically in a different research project.

4.4 Short – Run Equation Results

Table 5: Error Correction Representation for the Selected ARDL Model

ARDL (1,1,1,1,1) selected based on Schwarz Bayesian Criterion.
 Dependent variable is DLNGDP.20 observations used for estimation from 1992 to 2011

Regressor	Coefficient	Standard Error	T-Ratio	Prob.
DLNFDI	.014783	.0070492	2.0971	0.056
DLNHUM	-.023630	.053324	-0.44314	0.665
DLNINFL	-.0056487	.0086576	-0.65246	0.525
DLNM2	.016437	.047495	3.4607	0.735
DLNMC	.0049583	.0064136	0.77310	0.453
ECM(-1)	-.63645	.16157	-3.9392	0.002
R-Squared 0.95218		Residual Sum of Squares		0.4838E-3
R-Bar-Squared 0.88643		Equation Log-likelihood		77.9163
S.E. of Regression 0.0077768		Akaike Info. Criterion		65.9163
F-stat. F (6, 13) 26.5491[.000]		Schwarz Bayesian Criterion		59.9419
Mean of Dependent Variable 0.053577		DW-statistic		2.4736
S.D. of Dependent Variable 0.023076				

The magnitude of the error correction term suggests the speed of adjustment from short-run disequilibrium to long-run equilibrium. The coefficient of the error correction term is negative and significant as expected. The coefficient of $-.63645$ indicates high rate of convergence to equilibrium. The ECM(-1) being negative indicates that the model is dynamically consistent and stable. Being significant proposes further that the long-run coefficients are jointly significant. It further provides an evidence of the existence of long-run relationship among the independent variables. The coefficient of $-.64$ means that when there is any disequilibrium in the short-run, the speed at which it is corrected in the long-run is about 64%. This high coefficient of the ECM suggests that the system quickly corrects its short-run disequilibrium to long-run equilibrium after a shock.

As indicated in Table 5, FDI was found to be positive and significant. This meets the expectation of the a priori sign indicating that a 1% increase in FDI in Ghana increases real GDP (proxy for growth) by 0.01%. Unlike the long-run results, this is significant and implies that FDI contributes to economic growth as reported by the theoretical studies conducted by Lucas (1988), Barro (1990), Barro and Pain (1997) and Romer (1990) by the use of "endogenous" growth models.

In the short-run, human capital exerts negative impact on economic growth. This could be explained that increases in schools attainment takes some time before it sheds its influence on growth. The learning period before human capacity is developed can represent a time lag where labour cannot contribute meaningfully to production and for that matter growth. This result is however insignificant.

Inflation is reported to have negative effect on economic growth as expected but this does not have significant effect on short-run growth. The study of Fischer and Modigliani (1978) through the new growth theory mechanisms confirms the negative relationship.

Money supply is reported from Table 5 to have a positive impact on economic growth as explained by Keynes. That increases in money supply make people have excess money balances which make them buy more bonds. Buying more bonds raises the price of bonds and reduces interest rate.

According to him, the fall in interest rate increases investment and hence economic growth. This result is however not significant.

The coefficient of market capitalisation is positive and but insignificant in the short-run. This shows that stock market development in Ghana is growth enhancing but this impact could only be observed in the short run period. This result could be explained from the fact that stock market development probably generates perverse incentives that reward managers for their success in financial engineering rather than creating new wealth through growth. It could also be from the fact that stock prices react very quickly to a variety of information and that might have influenced the expectations on financial markets which could have made profits only within short periods. In addition, this may be explained from the conclusion of Singh (1997) that managers are judged by the performance of a company's financial assets and are thus not encouraged to undertake long-term investments and this makes the stock market undervalues long-term investment. It may then be deduced that the rewards of stock market development have been short-term rather than long-term growth of the economy of Ghana.

4.5 Granger Causality Test

The significance of an error correction term (ECT) shows the evidence of causality in at least one direction. The study however, conducted the causality test to ascertain the exact relationship between stock market and economic growth after establishing a long run relationship among them. The result is reported in Table 6.

Table 6: Results of Granger Causality Test

Null Hypothesis	F-Statistic	Prob.
lnMC does not Granger Cause lnGDP	0.23348	0.7948
lnGDP does not Granger Cause lnMC	0.37600	0.6933

The results in Table 6 highlight that there is no causal relationship between stock market development and economic growth in Ghana. With the P-Values reported against the variable MC, the null hypothesis of stock market development not Granger causing economic growth in Ghana cannot be rejected. This suggests that stock market development have not proved to be an important contributor to real GDP in the country. There is therefore neither causal relationship from stock market development to economic growth nor economic growth to stock market development in Ghana.

This results fall in line with that of Yartey and Adjasi (2007) who as a result of stock market's contribution to the financing of the growth of large corporation in certain African countries, conducted an empirical investigation to find the precise impact of stock market performance to growth of some selected African countries. They found inconclusive evidence even though stock market value traded seems to be positively and significantly associated with growth. Harris (1997) reported of no causal relationship and concluded that stock market variable does not offer much incremental explanatory power to economic growth in the developing countries sampled. In the case of developed countries, he concluded that although the level of stock market activity has some explanatory power, its statistical significance is weak. Osuala, Okereke and Nwansi (2013) did not find any causal relationship between economic growth and stock market performance in the short-run. This result of the study is contrary to that of Osei (2005) and Quidoo (2011) on Ghana. They both found stock market performance to granger-cause economic growth.

5. CONCLUSION AND POLICY IMPLICATIONS

The relationship between stock exchange and economic growth has been extensively discussed by economists. Some growth models do not consider finance as an important ingredient in economic growth. Others tend to favour the banks' role in the growth process rather than the stock market. On the contrary, the view of many experts stresses that stock market occupies the central and strategic position in the process of economic development of a country because they believe stock markets provide an avenue for growing companies to raise capital at lower cost. The precise link between stock market development and economic growth need to be proved empirically. This study used secondary data on stock market development indicators, human capital, foreign direct investment, inflation and money supply for the period from 1991 to 2011 in Ghana. The study revealed that stock market development has a negative impact on economic growth in the long-run and this is confirmed by the causality test that there do not exist any relationship between stock market development and economic growth in Ghana for the study period. Human capital and money supply have contributed positively to growth. Inflation and foreign direct investment have not shown to be deterministic variables to growth of the economy.

On account of the study findings, information on stock market activities, the modalities of investments and the benefits of investing on the stock among others should be made available to the general public on daily or weekly basis. This will help local investors to understand and appreciate investment on the stock. Activities at the stock market in recent times is becoming more sophisticated globally and this calls for more financial journalists who will digest the information on stock market development to local investors to boost their interest in investing in shares instead of debt instruments of the government and other fixed income investment with the banks.

Additionally, the independence of the Central Bank, further development of financial and money markets should be adhered to by the Bank of Ghana to facilitate the implementation of monetary policy in order to achieve price stability in the country.

High quality of labour innovates and creates new method of production and motivates others to facilitate high level of production. This study thus recommends that the educational institutions in the country such as the Ministry of Education and the National Council for Technical and Vocational Education specifically should be well resourced by the government in order to improve on the human resource of the country. In addition, if policy makers can increase the budgetary allocation to these institutions, it will aid in increasing enrolment at all levels of education and improve on the quality of human capital which is an important complementary factor to the other factors of production especially the adoption of modern technology.

REFERENCES

- Ahmed, N., Shahbaz, M. and Ali, L., (2008): Stock Market Development and Economic Growth: ARDL Causality in Pakistan. *International Research Journal of Finance and Economics*, Issue 14 (2008).
- Allen, F., and Gale, D. (2000): Financial Contagion. *Journal of Political Economy*, 108(1), 1-33
- Baboo, M., and Odit, M.P. (2009). Stock Market Development and Economic Growth: The Case of Mauritius. *International Business & Economics Research Journal*, Vol. 8.
- Barrell, R. and Pain, N. (1997): Foreign Direct Investment, Technological Change, and Economic Growth within Europe. *The Economic Journal*, 107(445), 1770-1786.
- Barro, R. J. (1990). Government Spending in a Small Model of Endogenous Growth. *Journal of Political Economy*, 98, 103-25.
- Barro, R. J. (2001). Human Capital and Growth. *The American Economic Review*, 91(2), 12-17.
- Barro, R. J. and X. Sala-i-Martin (1992). Convergence. *Journal of Political Economy*, 100 (2), 223-252.
- Beck, T., and Levine, R. (2003). Stock Markets, Banks and Growth: panel evidence. *Journal of Banking and Finance*, 32(3).
- Beck, T. and Levine, R. (2004). Stock Markets, Banks, and Growth: Panel Evidence. *Journal of Banking and Finance*, 28(3), 423-442.
- Bencivenga, V.R.; Smith, B.D. and Starr, R.M. (1996). Equity Markets, Transaction Costs and Capital Accumulation: An illustration. *The World Bank Economic Review*, 10(2), 241-165.
- Blackburn, K., Bose, N. and Capasso, S. (2005). Financial Development, Financing Choice and Economic Growth. *Review of Development Economics*, 9(2), 135-149.
- Boyd, J. H. and Smith, B.D. (1998): The Co-evolution of the Real and Financial Sectors in the Growth Process. *World Bank Economic Review*, 10, 371-96
- Capasso, S. (2008). Endogenous Information Frictions, Stock Market Development and Economic Growth. *The Manchester School*, 76(2), 204-222.
- Demirguc-Kunt, A. and Levine, R. (1996). Stock Market, Corporate Finance and Economic Growth: An Overview. *The World Bank Review*, 10(2):223-239.
- Dritsakis, N. and Adamopoulos, A. (2004). Financial Development and Economic Growth in Greece. An empirical Investigation with Granger Causality Analysis. *International Economic Journal*, 18: 547-559.
- Elliot, G., Rothenberg, T.J., Stock, J.H., (1996). Efficient Tests for an Autoregressive Unit Root. *Econometrica*, 64, 813-36
- Enders, W. (1995). Applied Econometric Time Series. New York: *John Wiley & Sons, Inc.* 365-373
- Firebaugh, G., (1992). Growth Effects of Foreign and Domestic Investment. *American Journal of Sociology*, 98 (I), 105-130.
- Fischer, S., and Modigliani, F. (1978). Towards an Understanding of the Real Effects and Costs of Inflation. *Weltwirtschaftliches Archive*, 114(4), 810-833.
- Földvári, P., and Van Leeuwen, B. (2005). An Estimation of the Human Capital Stock in Eastern and Central Europe. *Eastern European Economics*, 43 (6), 53-65.
- Frimpong, J. M. and Oteng-Abayie, E. F. (2010). When is Inflation Harmful? Estimating the Threshold Effect for Ghana. *American Journal of Economics and Business Administration*, 2(3); 232
- Ghatak, S., and Siddiki, J. (2001). The use of ARDL approach in estimating virtual exchange rates in India. *Journal of Applied Statistics*, 28, 573-583.
- Greenwood, J., and Smith, B.D. (1997). Financial Markets in Development and the Development of Financial Markets. *Journal of Economic Dynamics and Control*, 21, 145-82

- Harris, R.D.F. (1997). Stock Markets and Development: A Re-assessment. *European Economic Review*, 1, 136-139.
- Keynes, M.J. (1936). *The General Theory of Employment, Interest Rate and Money*. London: *Macmillan*.
- Krueger, A. G. and Lindahl, M. (2000). Education for Growth: Why and for Whom? *N.B.E.R. Working Paper No. 7591*
- Levine, R. (1991). Stock Markets, Growth and Tax Policy. *Journal of Finance*, 46(4), 1445-1465.
- Levine, R. and Zervos, S. (1998). Stock Markets, Banks, and Economic Growth. *The American Economic Review*, 88(3), 537-558.
- Lucas, R. E. (1988). On the Mechanics of Economic Development. *Journal of Monetary Economics*, 22(1).
- Meier, G.M. and Seers, D. (1984). *Pioneers in Development*. New York, Oxford University Press. Pp 223 – 245.
- Miller, M. H. (1998). Financial Markets and Economic Growth. *Journal of Applied Corporate Finance*, 11(3), 8-15.
- Morck, R., and Nakamura, M. (2000). Japanese Corporate Governance and Macroeconomic Problems. *Harvard Institute of Economic Research Working Papers 1893*, Harvard - Institute of Economic Research.
- Mubarik, Y. A. (2005). Inflation and Growth: An Estimate of the Threshold Level of Inflation in Pakistan. *State Bank of Pakistan, Research. Bulletin*, 1(2), 35- 44
- Mundell, R. A. (1965). Growth, Stability and Inflationary Finance. *The Journal of Political Economy*, 73(2), 97-109.
- N’zue, F.F. (2006). Stock Market Development and Economic Growth: Evidence from Cote D’Ivoire. *African Development Review* 18(1), 123-143.
- Nyong, Michael O. (1997). Capital Market Development and Long-run Economic Growth: Theory, Evidence and Analysis. *First Bank Review*, December 1997: 13-38.
- Osei, V. (2005). Does the Stock Market Matter in Ghana? A Granger- Causality Analysis. *Bank of Ghana, WP/BOG-05/13*
- Osuala, A.E, Okereke, J.E. and Nwansi, G.U. (2013). Does Stock Market Promote Economic Growth in an Emerging Market? A Causality Evidence from Nigeria. *World Review of Business Research*, 3(4), 1-13.
- Pesaran, M. H., Shin, Y. and Smith, R. J. (2001). Bounds Testing Approaches to the Analysis of Level Relationships. *Journal of Applied Econometrics*, 16, 289-326.
- Quaidoo, C. (2011). Stock Market Capitalization and Economic Growth in Ghana.
- Reis, A. (2001). On the Welfare Effects of Foreign Investment. *Journal of International Economics*, 54, 411-427.
- Romer, P. M. (1990). Endogenous Technological Change. *Journal of Political Economy*, 98(5), 71-102.
- Rousseau, P. L. and Wachtel, P. (2000). Equity Markets and Growth; Cross Country Evidence on Timing and Outcomes, 1980-1995. *Journal of Banking and Finance*, 24, 1933-1957.
- Singh, A. (1997). Financial Liberalization, Stock Markets, and Economic Development. *The Economic Journal*, 107, 771-782.
- Stiglitz, J. E. (1985). Credit Markets and the Control of Capital. *Journal of Money, Credit and Banking*, 17(2), 133-52.
- Surya, B. G. C. and Neupane, S. (2006). Stock Market and Economic Development: A Causality Test. *The Journal of Nepalese Business Studies*, 111(1).

- Sweidan, O. D. (2004). Does Inflation Harm Economic Growth in Jordan? An Econometric Analysis for the period 1970-2000. *International Journal of Applied Econometrics and Quantitative Studies* 1(2), 41-66.
- Tobin, J. (1965). Money and Economic Growth. *Econometrica: Journal of the Econometric Society*: 671-684.
- Wei, H. (2001). Measuring the Stock of Human Capital for Australia: A lifetime Labour Income Approach. Paper presented at the 30th Annual Conference of Economists, Perth, September.
- Yartey, C.M. and Adjasi, C.K. (2007). Stock Market Development in Sub-Sahara Africa: Critical Issues and Challenges. *IMF Working Paper WP/07/209*, 1-33.
- Zivengwa, T., Mashika, J. and Makova, T. (2011). Stock Market Development and Economic Growth in Zimbabwe. *International Journal of Economics and Finance*, 3(5):140.