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Financial Sector Openness and Stock Market Development in Ghana

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Abstract
The economy of Ghana has liberalised it financial sector and stock market operation. However, there is no study on the effect of this openness on the performance of stock market in Ghana. Therefore, this study sought to examine the effect of financial openness on the stock market development in Ghana by controlling for the financial crisis. The study used quarterly data from WDI for the analysis. Using the ARDL method, the study found that there exist a positive correlation between stock market performance and financial openness in Ghana. Similarly, it was found that the financial crisis had a negative effect on the stock market development in Ghana. Other variables that were found to affect the stock performance were exchange rate, inflation and GDP per capita. It is therefore recommended that measure to deepen financial sector liberalisation should be encourage. Also, good macroeconomic performance is needed, hence government and the Central Bank of Ghana should make effort to encourage investment that would lead to economic growth of the country and also ensures exchange rate stability.
Keywords: Financial development, stock market, openness, Ghana, cointegration
JEL Code: G01, G10, G28, G32

1.0. Introduction

Stock markets have grown considerably in developed and developing countries over the last two decades (Ayertey, 2007; Alajekwu, Ezeabasili & Nzotta, 2012). There are several factors that have contributed to the growth of the stock markets and the financial markets as a whole. These factors includes financial sector reforms and improvement in the institutional framework for investor among others (Koirala, 2009; Rajan & Zingales, 1998). This development in the stock market is expected to spur growth and economic development through allocation of capital. Research has confirmed this theoretical position (Levine & Zervos, 1998). These empirical literature seems to support the finance-growth nexus which postulate that financial development leads to growth.

Literature in favour of the stock market development assert that the stock market imparts a measure of liquidity to long-term investment that permits their instruments to be sold at a price that yields a lower rate of return than would otherwise be required (Baumol 1965). As one of the features of the stock market is the ability to freely trade shares, it eases investment in the long term. This improves the allocation of capital and increasing the probability of long-term growth and stable growth. Second, stock market liquidity may negatively influence corporate governance because a very liquid stock market may encourage investor myopia (Ayertey, 2007). Thus, instant stock market liquidity may discourage investors from having long-term commitment with firms whose shares they own and therefore create potential corporate governance problems with serious ramifications for economic growth (Bhide 1993). Given the importance of the stock market developments to growth, it is imperative that studies be concern with the development of the stock market.

Ghana in an attempt to cash-in on the gains that stock market would bring established the Ghana Stock Exchange. Comparing with other countries, Ghana's stock market has performed considerably well. Although the Ghana Stock Exchange is a new emerging market characterized by small size and low liquidity, it has been performing creditably in terms of return on investment. For example, in 1994 it was graded as the 6th best performing stock market index among all the emerging markets, gaining 124.3%, by Birinyi Associates, a Research Group based in the USA. It was also voted the best performer among all stock markets in Africa and the third best in emerging markets in 1998 in terms of capital appreciation by the Standard Chartered Bank London Limited (Economic Commission for Africa, 1999). The GSE was then again adjudged the world's best-performing market at the end of 2003 with a yearly return of about 154.7% (or 144 % in US dollar terms) compared with 30% return by Morgan Stanley Capital International Global Index as indicated in Yartey and Adjasi (2007).

The GSE All-Share Index, which is a statistical measure of the general performance of the Ghana Stock Exchange, has varied considerably over the past years. Table 2 and figure 1 show the trend of the GSE All-Share Index from 1991 to 2006. The All-Share Index rose sharply from 69.77 points in 1991 to 334.02 points in 1994 representing a gain of 124.34% but dipped in 1995, with a disappointing growth rate of 6.3% resulting

mainly from high levels of inflation and interest rate before reaching a peak of 1,201.08 points in 1998. The Index then experienced a downward trend two years after and then rose steadily to reach a record high of 7,469.04 points in 2004 representing a gain of 91.33%, although much lower than the 2003 growth rate of 154.67% which is the highest yield. The good performance of the stock market in 1994, 1998 and 2003 was attributed partly to favourable macroeconomic indicators (inflation, interest rate) and mainly to the listing of the Ashanti Goldfields Company Limited in 1994 (Quaidoo, 2010). In 1998 in particular, there was high demand for equity shares on the market that led to a remarkable increase in share prices on the market. The growth rate of -29.85% in 2005 was the worst since trading commenced on the Ghana Stock Exchange. The worst performance of the Ghana Stock Exchange in 2005 was attributed to the rising oil prices, inflation and interest rates (ISSER, 2006; GSE, 2006). Figure 1 also depicts a steady rise in the All-Share Index trend from 1991 to 2001, but a sharp rise from 2002 to its peak in 2004 and a fluctuation afterwards.

The size of the Ghana Stock Exchange is measured using the typical index of stock market capitalization to GDP ratio. This is defined as the value of domestic equities traded on the Stock Exchange divided by GDP. The magnitude of the market capitalization ratio indicates the ability to mobilize capital and consequently diversify risk (Osei, 1998). Information on the market indicators including the Gross Domestic Product (GDP) is shown in table 3. As indicated in table 3, the market capitalization, which measures the depth of the market, increased gradually from GH¢ 2.96 million in 1991 and jumped to GH¢ 196.84 in 1994.

The indicators presented points to the fact that Ghana stock market has considerably seen hey days. However, to keep on the path of positive stock market performance, there is the need to identify factors that would enhance the development of the stock market. Several studies has therefore attempted to find such variables. These variables that affect stock market performance include economic growth (Acheampong & Wiafe, 2013; Levine, 2005; LaPorta et al., 1997, 2006; Levine, 1999; Rajan and Zingales, 2003), inflation (Claessens, Klingebiel & Schmukler, 2006) and many other important factors. Nevertheless, openness to an economy may affect the stock market performance (Lim & Kim, 2011). Lim and Kim (2011), Basu and Morey, (2005); Li et al. (2004) have studied how openness affect stock market by focusing more by focusing on efficiency of stock markets. The focus of Lim and Kim (2011), Basu and Morey (2005) and Li et al. (2004) was on trade openness with virtually no attempt to look at financial openness on stock market performance.

The works that considers financial openness or financial liberalisation and its effect on stock performances are very few. These papers argues that financial openness or liberalization can expand business volumes and enhance efficiency in the equity market. However, Deidda (2006) indicates that premature financial development that hinges on financial liberalization in low income countries may hurt their economies. Stultz (1999) shows that financial globalization reduces the cost of equity capital because of the reduction in the expected returns to compensate risk as well as in agency costs (also, Henry, 2000; Bekaert et al., 2000, 2001). Third, not least, the liberalization process usually increases the efficiency level of the financial system by weeding out inefficient financial institutions and creating greater pressure for a reform of the financial infrastructure (Claessens et al., 2001; Stultz, 1999; Stiglitz, 2000). Such an improvement in financial infrastructure may alleviate information asymmetry, decreasing adverse selection and moral hazard, and further raising the availability of credit. Yet little is known on financial openness and stock market development on empirical estimation of the effect of financial openness on stock market development.

Apart from the positive effect on financial openness or liberalisation, the recent financial crisis has become an important factor in studying stock market development. Liu and Hsu (2006) indicate that Taiwan's economy did not seriously suffer from the Asian financial crisis of 1997–1998 owing to conservative financial liberalization. Accordingly, financial openness increases the uncertain relationships between banks and equity markets which affect the development of the stock market (Cheng, 2012). This implies that, the level of openness is likely to moderate the level of impact of the financial crisis on the performance of the stock market. Despite this, studies on the stock market have not factored in the effect of the financial crisis in the case of Ghana. This study therefore examines the effect of financial openness on stock market performance. The study also answers the question on the effect of the financial crisis on the performance of the stock market in Ghana.

The rest of the study is divided into four section. The second section presents the literature review of the study. The methodology is presented in section three, the section four presents the empirical result. Then the conclusions and policy implications are presented in section five.

2.0. Literature review

While the question of what determines stock market development has gained considerable attention in the empirical research recently, with the exception of the attempt of Calderon-Rossell (1991), theoretical research on the issue is in the very earliest stages. Reality is complex and the dynamics behind the development of stock markets are hard to capture. Nevertheless, El-Wassal (2013) present a theoretical framework in an attempt to explain the channels for stock market development. In explaining the framework, a

lot of factor with interconnected relationship affect stock market performance and development. These factor include economic activity, political stability and economic policy among others. From the model of El-Wassal (2013), policies that are geared toward financial sector liberalisation have a direct and a positive influence on stock market development.

El-Wassal (2013) is not the only author who has postulate such a relationship between policy and an aspect of financial development. For example, the long financial repression hypothesis which was advocated by Mckinnon (1973) and supported by Shaw (1973) emphasis the need for a liberalised financial sector. The works of McKinnon (1973) and Shaw (1973) provided the basis for the argument on financial openness as a means for financial development. Both McKinnon and Shaw stipulated that real interest rate is a critical factor in determination of financial capital in any financial system. In this direction therefore, placing controls on interest rates tends to artificially lower the real rate of returns on deposits thereby discouraging the accumulation of financial capital and inhibiting financial sector growth or development. Although recent arguments in favour of financial liberalization have given less focus on the real interest rate, the initial formulations by McKinnon and Shaw provided the necessary instrument to back the for call for more financial openness, especially among developing economies in recent times.

The more precise mechanisms through which financial openness might benefit the development of the financial system have been described in McKinnon (1973), Shaw (1973), Stultz (1999), Henry (2000), Bekaert et al. (2000 and 2005), Giannetti et al. (2002), Claessens et al. (2001), and more recently by Chinn and Ito (2006). In particular, enhanced financial integration should contribute to higher degree of competition within the domestic financial markets. This should lead to improved productive efficiency effects through intermediaries achieving the unit cost reduction. In turn, more developed financial systems could attract investment from domestic and foreign sources, further contributing to financial integration. In this sense, a virtuous cycle between financial liberalization and financial development could be expected (Gehringer, 2013). However Stiglitz (2000) focusing more on the capital market argued that liberalization is "largely based on standard efficiency arguments, employing a conventional neoclassical model and ignoring the special ways in which financial and capital markets differ from markets for ordinary goods and services."

Despite the critique of Stiglitz (2000), it is believed that allowing foreign participation enhances demand for shares. Subsequently, the foreign capital inflows entrenched the gains made from foreign participation. Errunza (1983) believed that inflows to the domestic capital markets leads to improvement in the performance of domestic markets through institutional and regulatory reforms, adequate disclosure and listing requirements and fair trading practices. Such reforms leads to boast in investors' confidence in domestic markets due to improved informational and operational efficiency (Henry & Cdhari, 2002; Diamond & Verrecchia, 1982). On the other hand restrictions on foreign participation in stock markets may contribute to insufficient depth and liquidity in the market, particularly in the absence of a strong and diversified domestic investor base. Yet, particular attention should be paid to the mode and the sequencing of the entry of foreign investors, as experience has shown that there is considerable risk associated with participation by non-residents, who have access to alternative investments and thus may manifest more volatile demand ().

Empirical studies on financial openness on financial development abound. Only few pay particular attention to openness effect on the stock market performance. For example Kim and Singal (2000) found that capital market opening results in increase in stock market returns, reduces volatility rates and increases stock market efficiency.

Studies has shown that private investment increases in country with liberalised stock markets (Henry, 2000; Fuchs-Schundeln & Funke, 2001). The work of Levine (2000) also shows positive impact of stock market liberalisation by improving the functioning of the financial and capital market (Levine, 2000). Levine (2000) showed that liberalisation of the stock market help enhance stock market liquidity. In turn, enhanced stock market liquidity accelerates economic growth mainly by improving productivity growth. Ngugi's (2003b) showed similar result for Nairobi Stock Exchange. However, the study of Ngugi used microstructure theory to study the stock market response to reform that involves liberalisation of the capital market.

Bae et al. (2006) has found that liberalisation increases the business environmental flow of information. This findings by Bae et al (2006) is significant due to the fact that Froot and Perold (1995) show that information dissemination affect stock market returns and from the behavioural model of Hong and Stein (1999) also predicts that stock price under-reaction is the outcome of gradual dissemination of information across the investing public.

Liberalisation of the financial market and eventually the capital market provides the impetus for investment in domestic securities by foreign investors and guarantees domestic investors the right to in foreign equity securities improved risk sharing, decrease the cost of equity capital and increase investment due to efficiency in capital market resulting from the liberalisation (Bekaert et al, 2005; Hubbard, 1997).

International financial integration which results from financial openness has a potential of helping the domestic financial intermediaries to grow faster through different channels. Openness of the financial sector

does not only help in attracting investment, it also to efficient intermediation (Calderon and Kubota, 2009). This notwithstanding, it lead to efficient operation of banking sector and put pressure on inefficient intermediaries (Levine, 1996; Caprio & Honohan, 1999). Thus financial openness results in displacing inefficient financial intermediaries and creating pressure for the implementation of reforms in the financial infrastructure. The end results of such action is the reduction in the problems of information asymmetry, adverse selection and moral hazard (Claesenset al. 2001; Chinn and Ito, 2006).

Kaminsky and Schmukler (2008) find that financial liberalization in emerging markets generates short run tensions but provides a market stabilization role in the long run. They also argue that financial deregulation may not only trigger short run problems and crisis if it occurs in economies with weak institutions and agency problems but also long-run gains arise as financial liberalization deepens and institutions improve. Understanding the effects of higher cross-border asset trade on the development of financial intermediaries stock markets and bond markets is crucial due to the impact of financial market development on growth (Levine, 2005) and, especially, on the direction of capital flows and the persistence of global imbalances (Chinn and Ito, 2007). In a seminal paper, Rajan and Zingales (1998) find that ex-ante financial market development may help boost the ex post growth of "external-financially-dependent" sectors by reducing their cost of raising funds abroad. Guiso et al (2004) argue that domestic financial market development still matters for growth even in economies that are highly integrated to world capital markets. Baltagi et al. (2009) use four different data sets since the 1980sto test the linkages between financial openness and financial development. They find that: (a) trade and capital account openness may have a significant impact on financial development in countries that are relatively closed, and (b) trade and financial openness may be substitute mechanisms of promoting financial development rather than complements as suggested by Rajan and Zingales (2003).

3.0. Methodology

The model for stock market development was given much formulation by the work of Calderon-Rossell (1991). Thus Calderon-Rossel saw stock market performance as mainly due to economic growth. This is obvious in his statement cited in El-Wassal (2013) that "*in general, economic progress in all regions, with a few exceptions, was the fundamental force behind stock market growth*". To broaden this theory, El-Wassal attempts to summarise the factors that influences stock market development in a frame. These identified factors included supply side and demand side factors, institution and economic policy. Therefore, this paper models a stock market development based on El-Wassal model to augment the Calderon-Rossel (1991) stock market development model. Due to this, stock market development is presented below

$$SD = f(GDPPc, KOPEN, INF, ER, BANK) \quad (1)$$

Stating in the estimate-able form and assuming a linear form equation, equation two could be estimated as

$$SD = \alpha_0 + \alpha_1 GDPPC + \alpha_2 KOPEN + \alpha_3 INF + \alpha_4 ER + \alpha_5 BANK + \mu_t \quad (2)$$

In this model, it is expected that μ is a randomized error term with white noise properties and have a normal distribution properties. Therefore, the models is supposed to follow the assumption of homoscedasticity, and uncorrelated errors. α_0 is a constant parameter while $\alpha_i, i = 1,2,.....8$ are coefficients to be estimated.

Variable definition and expected signs

Stock Developemnt (SD)

The variables Stock market development (SD) is a difficult variable to measure. However, most studies used the stock market capitalisation as a ration to GDP as a measure of stock market development (Acheampong & Wiafe 2013; Adams & Tweneboah, 2008; Claessens, Klingebiel, & Schmukler, 2001).

GDP per Capita (GDPPC):

It is a long standing fact that Income of a country is highly influential in stock market development (Pagano, 1993). This is based on the demand driven hypothesis that increase income exert pressure on the needTo explain further, an increase in per capita income results in an individual's ability to invest or save (El-Wassal, 2013). On a theoretical bases, the demand driven hypothesis asserts that increase income creates the need for new financial services. The need for financial services exert pressure to establish larger and more sophisticated financial institutions to satisfy the new demand for their services (Yartey, 2008). Despite this, Roc (1996) cautions increase in per capita income may not necessary results in development of financial services and eventual stock market development. Roc argues that increase per capita income of a country with high levels of incidence of poverty is likely to increase consumption expenditure rather than saving and investment. Thus, it is not only the increase in per capita GDP that matters, but also – and perhaps even to a greater extent - the level of the

per capita GDP. In view of this debate, this study includes GDP per capita as an explanatory variable of stock market development. It is expected that GDP per capita would have a positive correlation with stock market development.

Openness (KOPEN): This study uses the Chinn-Ito index for financial sector openness. This measure focus on the intensity. The use of this measure is appropriate measures the intensity of openness rather than just the *De Jure* level of openness.

Inflation (INF): The results of studies by Fama and Schwert (1977), Chen, Roll and Ross (1986), Nelson (1976) and Jaffe and Mandelker (1976) pointed to a negative relation between inflation and stock prices. We hypothesize similarly: an increase in the rate of inflation is likely to lead to economic tightening policies, which in turn increases the nominal risk-free rate and hence raises the discount rate in the valuation model.

Exchange rate (ER): If the Ghana cedi is expected to appreciate, the market will attract investments. This rise in demand will push up the stock market level (Mukherjee & Naka, 1995). Moreover, Ghana is a net import country hence the impact of exchange rate changes on the economy will depend to a large extent on the level of international trade and the trade balance. Hence the impact will be determined by the relative dominance of import and export sectors of the economy.

Bank (BANK): To determine whether stock market development is significantly correlated with banking sector development, we include a measure of banking sector development in the regression. Most studies use M2 relative to GDP as a measure of financial depth. However, according to King and Levine (1993), this measure does not tell us whether the liabilities are those of the central bank, commercial banks or other depository institutions. As a result, this paper uses the value of domestic credit provided by the banking system to the private sector relative to GDP as a measure of banking sector development. Private credit is the most comprehensive indicator of the activity of commercial banks. It captures the amount of external resources channelled through the banking sector to private firms. This measure isolate credit issued to the private sector as opposed to credit issued to governments and public enterprises. In addition, it measures the activity of the banking system in one of its main function: channelling savings to investors. However, very high levels of banking sector development can lead to substitutability between debt and equity making the coefficient of the square of bank credit negative.

3.1. Data source

Data for the study were obtained from the World Development Indicators (2015). This data set contains comprehensive information on stock market capitalisation, credit to private sector, GDP per capita and exchange rate. The Financial openness data was obtained from Chinn-Ito index which is available at the website. Due to the nature of the study, we interpolated the data, we admit that interpolation result in some information loss in the series used. However, this does not affect the quality of the result obtained for policy purposes and further academic research.

4.0. Empirical results

The study examines the stationarity properties of the variables as a precondition for estimating the variables. It is believed that all-time series or majority of them are hardly stationary. This study uses the popular Augmented Dickey Fuller test for time series test. However, the inherent ADF has limitations which may lead to errors in the conclusions drawn from it due to low power of test. Therefore, KPSS is used as a supplementary unit root test in this study.

Table 1: Difference Unit root test

Variable	ADF Tau	PP	KPSS	I(0)
ER*	-3.217**	-10.438***	0.274***	1
SMC*	-9.177***	-9.177***	0.181***	1
INF	-7.293***	-2.494	0.0476**	1
GDPPC	-3.870**	-4.076**	0.0746**	1
BANK	-9.224***	-9.224***	0.133***	1
KOPEN^{+}	-3.430**		0.2035***	0

Critical values at 5% Note: * means stationary after first difference

The variables used for the study, were found to be stationary at levels and first difference. The variables KOPEN is measured at levels. Due to this, it was prudent to use the ARDL bounds test for cointegration test.

Long and short run Estimations

The short run estimate of the impact of financial openness on the stock market was found to be positive and significant. Openness of the financial sector is an important catalyst to the development of the stock market. This results confirms the a priori expected signs and theoretical position. The positions of El-Wassal (2013), Mckinnon (1963) and Shaw (1973) argues that financial liberalisation affect the financial sector development. Thus, it is empirically right to have a positive effect of financial openness to be positively related to stock market development. In the short run, it was found that an increase in the extent of the capital account openness by 1 is expected to lead to an improvement in the stock market development by .08%. Even though the impact in the short run is low, cumulated effect of such a performance would help in the financial sector development and hence the capital market.

The effect of banks development in the short run for the three quarters was found to be positive and statistically significant. This indicates the important role of banking sector on the stock market development in Ghana. The impact of banking sector development in the first, second and third quarters were found to be 0.002, 0.003 and 0.003 respectively. These marginal increase on the stock market development indicates that at the initial stages of the financial development, it is expected that the banking sector is to complement the development of the capital market (King & Levine, 1993).

The remaining variables with the exception of real exchange rate had positive effect on the stock market development. For example, economic growth is expected to results in stock market development. This results from a growth in economic activity. Increase in GDP signals an economic boom with would lead to increase investment. Even though exchange rate was found to be positively related to stock market development in the short run, a persistent depreciation of the currency could jeopardise the stock market performance. This is because, a stronger exchange rate prevent exchange rate losses. However, a volatile exchange rate would increase the level of exchange rate risk for businesses.

Table 2: Short run dynamics

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(KOPEN)	0.085399	0.0082780	10.316464	0.000
D(BANK)	0.001613	0.0004297	3.755499	0.000
D(BANK(-1))	0.002270	0.0004	4.922543	0.000
D(BANK(-2))	0.002658	0.0004	5.7048222	0.000
D(BANK(-3))	0.002743	0.0004	5.848512	0.000
D(LGDP)	0.36656	0.1175	3.117415	0.002
D(LGDP(-1))	0.464297	0.1198	3.8729829	0.000
D(LRER)	0.534449	0.1650	3.2383584	0.001
D(LRER(-1))	-0.60733	0.1643	-3.695593	0.000
D(LCPI)	0.025619	0.0085	3.0105941	0.003
D(DUMMY)	-0.01300	0.0110	-1.17927	0.242
CointEq(-1)	-0.42890	0.0517	-8.29070	0.000

Source: authors' estimate (2015)

The error correction term in the model was statistically significant and negative. This means that the dynamics in the short run are able to adjust and restored to the long run equilibrium. The error correction term indicates that any shocks in the short run takes about 3 quarters to be restored back to its long run equilibrium. Although moderate, the adjustment in the financial market especially on the stock market is low since the capital markets operates on information. Therefore, delays in the adjustment process may affect the well-functioning of the stock market.

From the long run estimation in Table 3, the study found that, there is a positive relationship between financial openness and stock market development. The variable was found to be important in the long-run. The study found that an increase in the level of openness results in 0.072 unit increase in the performance of the stock market. Thus capitalisation of the stock market increases. The result supports the theoretical position financial sector development which argues that a liberal financial sector foster the development of financial and capital markets. The positive effect of openness may due to a fall in the cost of capital and the removal of rigidities that hampers the development of the stock market (Calderon and Kubota, 2009). Similarly, information increases and increases the efficiency (Claesenset al. 2001; Chinn & Ito, 2006). Openness of the financial sector leads to the financial market development in part due to increase in information efficiency. This help in boasting investors' confidence hence leads to improve returns and proper price adjustment. This eventually reduces losses and increase market capitalization.

The study included bank competition as an explanatory variable. It was found that bank influences the stock market development in a negative way. Thus there is a competition between bank development and the stock market. This substitutability is expected in developing countries. This relationship between banking sector development and the stock market is expected.

Exchange rate depreciation was related to a fall in the performance of the stock market. It suggested that a 1% depreciation in the exchange rate leads to 0.21 percentage point reduction in the stock market capitalisation. This results is similar to the findings of Acheampong and Wiafe (2013), Anokye and Tweneboah (2008). The negative effect observed for exchange rate is no surprise since the economy is import dependent. Hence the depreciation of the currency affect investment growth rate and increase the exchange rate risks. This leads to lower investment on the stock market and hence lower the market capitalisation.

Table 3: Long run estimation

Variable	Coefficient	Std. Error	t-Statistic	Prob.
KOPEN	0.072072	0.010773	6.68978	0.000
BANK	-0.00095	0.0003534	-2.712250	0.00848
LGDP	0.00228	0.0086014	0.265978	0.79107
LRER	-0.20576	0.038450	-5.351508	0.000
LCPI	-0.04692	0.0155757	3.0124101	0.00365
DUMMY	-0.02096	0.0095307	-2.20019	0.03124
C	1.111540	0.205765	5.401972	0.00

Source: Authors' estimate (2015)

The price levels in the long run had a negative effect on stock market performance. The results indicates that a 1% increase in price leads to 0.047 percent reduction in the stock market performance in Ghana. This results confirms the theoretical positions on the effect of inflation on the stock market performance. This supports the traditional arguments of Fama and Schwert (1977), Chen, Roll and Ross (1986), Nelson (1976) and Jaffe and Mandelker (1976). This is because, price fluctuations signal macroeconomic instability. Once there is higher price levels, the central banks react with tightening stance which leads to an increase in the nominal risk of investors

The dummy variable that was used to capture for the financial crisis had a negative effect in the long-run. This implies the crisis in the long run resulted in the deterioration in the performance of the stock market. This lead to the downward shift of the stock market activity and the stock market capitalisation. This confirms the theoretical expectation of the effect of the 2007 global financial crisis on the various aspect of the Ghanaian economy. This impact may have been felt due to the importance that foreign direct investment play on the Ghana stock exchange (See: Acheampong & Wiafe, 2013; Tweneboah & Anokye, 2008).

4.1.0. Post estimation test

The estimated regression post estimation results showed that the model was correctly fit. The adjusted R-square shows that 92.53% of the variation in stock market is explain by the variables in the regression model. The F-statistics was significant at 1%. This indicates that the variable put together influences the stock market development in Ghana. Similarly, there was no serial correlation among the variables used for the regression. Thus the past values of the dependent variable do not depend on each other. This was because the result

Table 4: Regression diagnostics

R-squared	0.935243	Mean dependent var	13.3165
Adjusted R-squared	0.925349	S.D. dependent var	5.78316
S.E. of regression	1.580095	Akaike info criterion	3.88441
Sum squared resid	179.7624	Schwarz criterion	4.23167
Log likelihood	-151.145	Hannan-Quinn criter.	4.02400
F-statistic	94.53120	Durbin-Watson stat	1.98226
Prob(F-statistic)	0.000000		

The model stability was checked using the Cumulative Sum (CUSUM) and the Cumulative Sum of Squares (CUSUMSQ). The graph of the CUSUM and CUSUMSQ shows that the residual plot are within the bounds indicating a stable regression for the estimation period. As in the Figures below

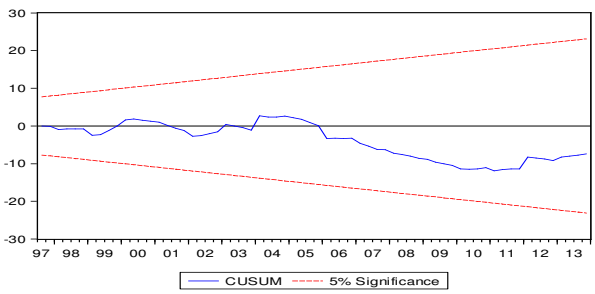

Figure 1: CUSUM

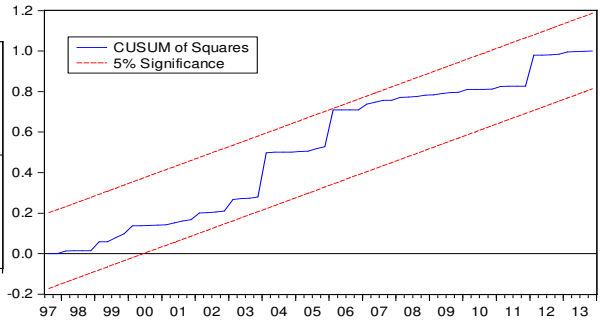

Figure 2: CUSUMSQ

5.0. Conclusion and policy implication

The study focused on openness and stock market performance. This study was important in two sense, continual liberalisation and openness of financial market is theoretically argued to be good yet no study has been done on it impact on the functioning of the domestic market. Secondly, the study also examine the effect of financial crisis on the stock market performance. The results indicated that financial crisis had a negative effect on stock market development in Ghana in the long run without any significant impact in the short-run. The openness had significant effect on the stock market development during the short and long runs. This result indicates that stock market and financial openness correlate positively. The implication is that continual openness of the stock market and the financial market as a whole is beneficial to the development of the stock market. However, the impact of the crisis on the opened economy was estimated to be negative. In this scenario, there must be a clear balance in the level of openness to prevent or cushion the economy's capital market against future financial crisis and global business cycles.

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