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## Stock Market Development and Long-Run Economic growth in Africa

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### *Abstract*

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**Keywords:**

Economic growth,  
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Panel data analysis

Utilizing General Moment Method (GMM) and annual data of 11 developing economies from Africa over the period 1995-2014, this study investigated the relationship between economic growth and stock market development while controlling for the effect of the country instability which is utmost importance in investment decisions. The results of this study revealed that country instability has a negative and statistically significant effect on economic growth in Africa. This paper further reveals that market capitalization and stock values traded have a negative and insignificant effect on economic growth in Africa. In addition, the results of this study show that stock market turnover contributes positively to economic growth but it is statistically insignificant. Domestic investment, foreign direct investment and inflation influence positively economic growth in the countries under investigation while trade openness harms economic growth. These results give support to the recently empirical study for African stock markets. The study recommends that both policy makers and market managers reinforce the creditors' right which may restore the confidence of investors and create a propitious economic environment from infrastructural improvement.

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## **INTRODUCTION**

In the recent past, there has been an interest in African continent due to its striking economic growth and the growing importance of its stock markets. According to United Nations Conference on Trade and Development (UNCTAD)' yearly statistics, African continent experienced a mitigated economic growth until 1995, negative or low-positive growth. From that date, the continent has undergone a positive and increasing economic growth every year up to date. In the last decade, average economic growth of the continent was 4.5% while the world average economic growth turned around 2.5 %. The continent counted 12 stock markets in 1990 and 20 in 2000, almost hundred percent increases in ten years. The market's capitalizations have followed the same trend. It was 260 billion USD in 2000 and has been increasing every year to reach 905 billion USD in 2010, almost 3.5 folders (Africa development Indicator of World bank). This impressive economic growth and stock market development of the continent reignites the debate between stock market development and economic growth in Africa. As result of this, a growing body of empirical studies has attempted to determine the causalities between stock market development and economic growth in Africa. Most of these studies support the positive impact of stock market development on economic growth (Emmanuel and King 2014, Kolapo and Adaramola 2012). On the contrary, some authors argue that the stock markets have negative impact on economic growth due to volatility in stock price, weakness in market regulation and organization coupled with an instable macroeconomic environment that may impede capital mobilization and market liquidity (Philip et al. 2001; Federer 1993; Alajekwu and Achugbu 2012, Rabi et al. 2015).

Besides, some studies found no link between stock market development and economic growth (Sheilla and Nicholas 2014, Elif Kaya et al. 2011). However, this argument seems not to be indubitable since most developed and industrial countries experienced their economic development through the channel of developed stock markets (John Hicks, 1969; Anson Wong and Xianbo Zhou, 2011; Everlyne Ngare et al., 2014). Moreover, most of developing countries experience a shortage of capital to finance their investment and African countries stock markets are not yet well developed. Therefore the primary source of financing is debt from banks which in turn refinanced by central bank. Consequently, the interest rate does not reflect the equilibrium between supply and demand of credit; because it depends only on the monetary policy of central bank (Corporation Finance 2014). In underdeveloped stock markets like in African context, saving is still relatively low since people prefer to invest in land and apartment in order to avoid loss of value of their savings due to effects of high inflation rate (case of Zimbabwe).

Therefore developed stock markets may assist to promote long run economic growth through the channel of increased domestic investment due to it competition with banks sector which may lead to decreasing in rental cost of capital, assist savers to buy and sell quickly when they are in need of money; facilitate the easy access of companies to get capital by means of equity issues (Levine 1991, Bencivenga et al. 1996).

Though a large number of empirical studies have examined the link between stock market development and economic growth, the debate on the contribution of stock markets to economic growth is far from settled, especially for Africa countries which have not attracted researchers due to underdeveloped issues of its stock markets which constrain resources mobilization to

finance a high return project. Even the existing studies do not address the countries instability problem which is utmost importance in investment decisions.

It is for these reasons that this study was set out to investigate the impact of stock market development for a sample of 11 African countries on their economic growth in view to provide a policy maker a better guide to formulate policies while taking into account the countries instability issues. The sample of countries has been selected according to the establishment date of the stock markets, the importance of listing company, the market capitalization and the date the market was opened to foreign investors.

The rest of the study is structured as follow. Section 2 provides a literature review of stock market development. Section 3 highlights the econometric methodology that enables us to investigate the impact of stock market development on economic growth in Africa. Section 4 describes data set; presents the estimation technique and discuss the empirical results. Section 5 concludes the study and provides policies implications.

## **LITERATURE REVIEW**

There are a significant number of empirical works which support a positive relationship between stock market and economic growth, among them include Emmanuel and King (2014) who examined the effect of capital market development on economic growth in Ghana for the period 1991-2011. The authors employed Structural Equation model to address the causal effect between capital market development and GDP growth. The empirical result revealed a positive bi-directional relationship between economic growth and capital market development, but the stronger effect is from capital market development to economic growth.

Mian and Muhammad (2010) investigated the impact of stock market on economic growth in Pakistan for the period 1986-2008. The study used two measures of stock market development namely: size of the market and the liquidity in the market in term of market capitalization. The empirical findings of this study revealed that an increased of stock market size and liquidity have a positive effect on economic growth in Pakistan.

Guglielmo et al. (2004) examined the impact of stock market on economic growth from a sample of seven countries for the period 1077-1998. The authors used Toda and Yamamoto (1995) framework to test for causality in VARs. The study showed that well functioning stock markets can foster economic growth through the engine of faster capital accumulation.

Sheilla and Nicholas (2014) examined the effect of bank and stock market development on economic growth in South Africa for the period 1980-2012. The authors used the autoregressive distributed lag bounds testing approach to address the relationship among banks, stock market development and economic growth. The findings of the study revealed that bank development have a positive effect on economic growth in South Africa, while no relationship has been for stock market development.

Felix and Neven (2011) investigated the relationship among bank, stock markets and economic growth in low and high income countries. The empirical study revealed that banks have a sizeable positive effect on capital accumulation in low income countries while stock markets have not contributed neither to capital accumulation nor productivity growth. The study further indicated that stock markets have a sizeable positive effect both on productivity and capital

growth on high income countries, while banks only impact capital accumulation.

Alajekwu and Achugbu (2012) addressed the role of stock market on economic growth in Nigeria for the period 1994-2008. The findings of the study revealed that market capitalization and value traded ratio have a weak negative effect on economic growth in Nigeria while turnover ratio has a very strong positive impact on economic growth.

Muhammad et al. (2008) examined the link between stock market development and economic growth in Pakistan. The paper investigated whether there is a relationship between stock markets and economic growth during the period 1971-2006. The authors employed DF-GLS and Ng-Perron to find the order of integration of variables. The study further applied J-J-Co-Integration, ARDL and Engel-Granger to address the causality issues among variables. The results of the study showed a strong positive and bi-directional relationship between financial development and economic growth in the long run while one way causality was found for the short run which runs from stock market development to economic growth.

Thorsten and Ross (2004) examined the impact of stock markets and banks using a panel data of 40 countries for the period 1976-1998. The authors employed the General Method of Moment technique which was developed for dynamic panels. The findings of the study showed that stock markets and banks have a positive influence on economic growth.

Ross and Sara (1998) examined whether a well functioning stock markets and banks promote economic growth in the long-run. The finding of the study revealed that stock market liquidity and bank development both positively predict economic growth, capital accumulation and productivity improvement. The author further showed that stock market size and volatility and international integration are not robustly linked with growth.

Rabi *et al.* (2015) investigated the impact of stock market development on economic growth in Nigeria for the period 1990-2010. The author employed the ordinary least square techniques and the results showed that both market capitalization and value traded ratio have a negative impact on economic in Nigeria, while turnover ratio indicated a strong positive effect on economic growth.

Amna *et al.* (2013) investigated the role of stock market on economic growth in Libya from the perspective of brokers, employees and investors. A set of questionnaire were used to address the role of stock market on economic growth, the problem inherent to the stock market and the measures taken by the market to improve its contribution in economic growth. The study results revealed that brokers, employees and investors agreed that the Libyan stock market have a significant and positive effect on economic growth.

Kolapo and Adaramola (2012) examined the impact of Nigerian capital market on its economic growth for the period 1990-2010. The authors employed Johansen co-integration framework and Engel-Granger causality test. The findings of the study indicated a co-integration between Nigerian capital market and its economic growth. The study further suggested a bi-directional causality between the gross domestic product and the value of transaction and a unidirectional from market capitalization to the GDP. The study finally supported the positive impact of capital market on economic growth in Nigeria.

Marisa Laokulrach (2014) investigated the link between stock markets and economic growth in Thailand for the period of 1998-2012. The results of the study showed a positive bi-directional relationship between stock markets and economic growth in Thailand through gross capital formation.

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Shao-chi Chang (2001) examined the relationship between stock market development and economic growth for a sample of 70 countries over the period 1975-1992. The empirical results revealed a significant positive impact of stock markets development on both the long run growth rate and short run level of real GDP per capita. The study further indicated that stock markets mainly influence economic growth through the channel of productivity improvement, rather than capital formation.

Ross Levine (1991) examined the relationship among stock markets, growth and tax policy. The paper employed the endogenous growth model in which stock markets emerges to allocate risk and explores how stock markets alters investment incentives in way that change steady state growth rate. The study showed that stock markets accelerate growth through the channel of firms ownership trading and the portfolios diversification.

Philip *et al.* (2001) investigated the relationship among banks, stock markets and economic growth by using time series method and data from five developed economies. The study revealed that both banks and stock markets can promote economic growth but the effects of the former are more powerful. The authors further suggested that the contribution of stock markets on economic growth may have been in cross-country growth regression studies. According to Falko *et al.* (2008) the banks had a weak effect on economic growth than stock markets.

Mohammad Mafizur and Salahuddin (2010) examine the role of stock market on economic growth in Pakistan for the period 1971-2006. The authors employed FMOLS and ARDL bound-testing for the long run relationship and ECM for the short run dynamics. The findings of the study revealed that an efficient stock markets have a positive impact on economic growth both in the short and long run. The paper further showed that financial instability and inflation have a negative effect on economic growth while a human capital, foreign direct investment and stock markets liquidity have a positive effect on growth.

Anoshirvan Taghipour (2009) analysed the link among banks, stock markets and economic growth in Iran by emphasizing on the transmission channels. The paper employed Johansen co-integration framework, Engel-Granger causality test and Error Correction Models (ECM). The findings of the study revealed that banks affected economic growth through the channel of capital accumulation, while stock markets cause economic growth through productivity channel.

Elif Kaya *et al.* (2011) examine whether banks and stock markets have the same impact on economic growth in Turkey for the period 1988-2004. The study employed Johansen and Granger causality test and the results indicated that banks development have a positive effect on economic growth. Conversely, the results showed no relationship between stocks markets and economic growth.

Erasmus and Nicholas (2014) investigated the relationship between stock market development and economic growth in Ghana by using ARDL-bounds technique. The findings of the study suggested no positive effect of Ghana stock market development on its economic growth in the long run. The paper concluded that the increase credit to private sector is the key driver of economic growth in Ghana.

Ifuero Osad (2015) investigated the impact of Nigerian stock market on its economic growth by using time series data from 1986 to 2005. The author used the co-integration technique and the results showed a positive influence of stock market on economic growth.

Ehsan and Junaina (2014) examine the impact of stock market development and banking development on economic growth in a panel of 10 Asian Islamic countries over the period

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1990-2009. The author employed the dynamics panel pooled mean-group techniques and the results showed a significant positive effect of banks and stock market development on economic growth.

Bernhard Ishioro (2013) examined the causal relationship between stock market development and economic growth in Zimbabwe for the 1990-2010. The study employed the Augmented Dickey Fuller unit root test and the long-run Granger non-causality estimation technique of Toda and Yamamoto to address the nature of the relationship between stock market development and economic growth. The results showed a bi-direction relationship between stock market development and economic growth.

Dong and Shu (2013) investigated the impact of banks and stocks market development on economic growth by using an unbalanced panel data of 96 countries over the period of 1976-1998. The findings of the study revealed that banking development boost strongly economic growth in low-income countries than stock market, while the opposite have been found for the high-income countries or low-inflation ones. The authors further found a positive effect of banking development on stock markets but a negative impact was found from stock markets development to banking development. The study concluded with the feedback effects of economic growth on both banking and stock market development.

This paper complements the existing literature by employing an appropriate analysis technique, General Moment Method (GMM) which was developed for dynamic panel data analysis. Moreover, the research includes a sample of 11 African stock markets and further addressing for country instability which is utmost important in investment decision.

## **METHODOLOGY**

This section presents the methodology that was used to investigate the impact of stock markets development on economic growth in Africa by employing General Moment Method (GMM) which has important econometric advantages over other estimation techniques (fixed effect or random effect) namely the inclusion of lagged dependent variable as regressor, the control for endogeneity of all explanatory variables and so on...

### **Model specification**

The econometric model we have developed takes into account those factors that play an important role in economic growth and was specified as follow:

$$\text{Grow}_{it} = B_0 + \alpha * \text{Grow}_{it-1} + B_1 \text{DI}_{it} + B_2 \text{FDI}_{it} + B_3 \text{INF}_{it} + B_4 \text{OP}_{it} + B_5 \text{MC}_{it} + B_6 \text{VT}_{it} + B_7 \text{TR}_{it} + B_8 \text{ME}_{it} + e_{it}$$

Where:

$\text{Grow}_{it}$  = annual growth rate of Gross Domestic Product (GDP),

$\text{FDI}_{it}$  = foreign direct investment as a percentage of GDP,



$DI_{it}$  = domestic investment as percentage of GDP,

$INF_{it}$  = inflation rate, consumer prices (as an annual percentage),

$OP_{it}$  = openness measured as exports plus imports, as a percentage of GDP;

$MC_{it}$  = Stock market capitalization as percentage of GDP, a proxy of stock market size;

$VT_{it}$  = Stock value traded as percentage of GDP, a proxy of market liquidity;

$TR_{it}$  = stock market turnover ratio (total value traded divided by market capitalization), a proxy of stock market efficiency;

$ME_{it}$  = Military expenditures as percentage of GDP; a proxy for country risk

$e_{it}$  = error term.

### **Theoretical Assumption**

In order to achieve the purpose of this study, gross capital formation and foreign direct investment are expected to have a positive effect on economic growth while inflation and military expenditure are expected to have a negative impact on economic growth in countries understudy. A high proportion of budget reserved for defense expenditure may reduce resources that may be destined for economic growth project. Moreover, an increase in military expenditure is a sign of country's political instability which may dissuade investors from investing.

The contribution of trade openness and the stock markets indicators (stock market capitalization, stock traded value and turnover ratio) are expected to be ambiguous due to underdeveloped infrastructural that face Africa countries which undermine their economic growth. African countries may benefit from trade openness if their open economies increase competitions which raise incentive to production specialization or to make use of comparative advantage of Adam Smith (1776) and David Ricardo (1817), otherwise opening economy may harm their economic growth.

The market capitalization is expected to have a positive effect on economic growth if only the African stock market may quickly mobilize capital and diversify risk. Based on the similar consideration, the stock value traded and turnover ratio are expected to have a positive influence on economic growth if the stock market may ease investment and promote the information acquisition about firms and managers (Levine and Zervos, 1996) or if the stock market are efficient in information and liquid in stocks trading but this is not the case of African stock markets since African countries suffer from underdeveloped infrastructure which may directly and indirectly impede the market efficiency and liquidity.

## DATA, ESTIMATION TECHNIQUE AND INTERPRETATION OF THE RESULTS

### Data

We employ annual data from World Development Indicator 2015 of World Bank to address the relationship between stock market development and economic growth for a sample of 11 countries from Africa

### Estimate technique

General Moment Method (GMM), besides remedying the shortcoming of cross-country and time series data analysis, it has huge advantages on fixed and random effects technique. So it is the appropriate technique for the aforesaid research.

### Empirical Result and Interpretation

**Table 1** below presents the empirical regression results of the General Moment Method technique.

**Table 1. Regression Results for Empirical analysis Using GMM**

VARIABLES	$Grow_{it}$
$Grow_{it-1}$	0.201***
	(0.0678)
$DI_{it}$	0.198***
	(0.0524)
$FDI_{it}$	0.00896
	(0.0185)
$INF_{it}$	0.0642*
	(0.0372)
$OP_{it}$	-0.0337**
	(0.0147)
$MC_{it}$	-0.00338
	(0.00670)
$VT_{it}$	-0.0365
	(0.0338)



TR <sub>it</sub>	0.0295
	(0.0323)
ME <sub>it</sub>	-0.686***
	(0.239)
Constant	2.787*
	(1.484)
Observations	209
Number of country	11
F (9, 199)	5.89
Prob > F	0.000
Standard errors in parentheses	
*** p<0.01, ** p<0.05, * p<0.1	
Sargan test of overid. Restriction:	Chi2(199) = 203.50; Prob > chi2 = 0.389
Arellano-Bond test for AR(1) first dif:	Z= -3.84; Prob = 0.00
Arellano-Bond test for AR(2) first dif:	Z= 0.14; Prob = 0.888

The results reveal that the initial GDP growth, domestic investment, inflation, trade openness and military expenditure have statistically significant influence on economic growth. While, foreign direct investment, market capitalization, stock value traded and stock market turnover have no statistically impact on economic growth.

Domestic investment has a positive sign and statistically significant at 1% level. This finding gives support to neoclassical theory which emphasize on the fundamental role of capital accumulation for long-run economic growth (Robert solow 1956, Joseph Stiglitz and Hirofumi 1969). The variable inflation is positive and significant at 10% level which means that during high inflation, investors tend to increase their investment to maximize profit due to high prices (Fantessi and Kipro, 2015).

Trade openness has negative sign and statistically significantly at 1%. This is a result of underdeveloped infrastructural problem that undermine the production of competitive goods in African countries. The negative sign of military expenditure means that the countries under study have unstable economic environment which affects consumers and investors confidence, and then dissuades consumption and investment, further harms economic growth of those countries under investigation.

The variable foreign direct investment has a positive impact on economic growth but not statistically significant. The insignificance of FDI means that FDI is playing complementary role with domestic investment instead of crowding out the later (Sumei Tang *et al.*, 2008). The variables market capitalization and stock value traded; although insignificant contribute negatively to economic growth. The negative influence of market capitalization and stock value traded on economic growth may not be attributed to greater liquidity, integrated stock market or quick public information revelation issues of Bencivenga and Smith (1991), Obstfeld (1994) and Stiglitz (1994) respectively. It may be due, one hand to default on creditor right reinforcement, on market regulations and shortcoming from underdeveloped infrastructure which has an adverse

effect on financial system and market. On the other hand, it may result from assumption that financial intermediaries are in better position than stock market in resolving agency problems since African stock market are not yet developed and most of financing issues coming from financial intermediary (Stiglitz 1985) or the view of Mayer 1988 and Fry 1997 who stated that corporate investment is not financed through equity issuing. It may further result from unstable politically environment that dissuade investors from investing. The variable stock market turnover, although insignificant contribute positively to economic growth in countries under investigation. This supports the findings of some authors in the literature (Samy Ben et al. 2015; Rabi et al., 2015).

## **CONCLUSION AND RECOMMENDATION**

The study examined the relationship between stock market development and economic growth by selection a sample of 11 African former stock markets for the period 1995-2014. Employing General Moment Method technique, the study finds a positive and statistically significant effect of initial GDP growth, domestic investment and inflation on economic growth. This findings support the view of Charles and Nicholas 2006 in regard to lagged growth and investment. On the contrary, trade openness and country politically instability proxy by military expenditure as percent of GDP have negative and statistically significant impact on economic growth. The negative impacts of military expenditure support the study hypothesis that considers country risk level as utmost important in investment decision. Besides, stock market development indicators namely market capitalization and stock traded value, although insignificant, have a negative impact on economic growth while stock market turnover have a positive influence on growth. Rabi *et al.* (2015) study confirms the negative impact of both market capitalizing, stock value traded and the positive effect of stock market turnover. From policy perspective, policy maker and market manager need to reinforce creditors' right and pursue policies that create a propitious economic environment where banks may fulfill their intermediary role in regard to stock market development.

These findings in summary elucidate the relationship between stock market development and economic growth in Africa countries in panel view while taking into consideration the country instability problem. The main limitation of this study is that the paper fails to account for the prominent role of financial intermediaries which was an essential precondition to gain significantly from stock market development.

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## APPENDIX

**Table 2.**List of the Sample of Countries.

S/N	Countries	S/N	Countries
1	Botswana	7	Namibia
2	Egypt	8	Nigeria
3	Ghana	9	South Africa
4	Kenya	10	Tunisia
5	Mauritius	11	Zimbabwe
6	Morocco		