

Long-Run Impact of Export Growth on Stock Market Development in Selected African Countries

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Abstract: *Despite a significant increase in the number of stock exchanges in the African region, they did not promote investment in the region as most of these are at an early stage of development. This paper investigates the long-run impact of export growth on the stock market development in African countries using the pooled mean group (PMG) model for the period spanning 1996 to 2016. The paper uncovers that export growth has a long-run positive and statistically significant impact on the African Stock Market Development. When the findings are taken into consideration by the policymakers, the infant industries in Africa will be able to compete favorably with their external counterparts while the importation of processed goods will be drastically reduced to the region.*

Index Terms: *Africa, Export Growth, Stock Market, Financial Crisis, Pooled Mean Group*

I. INTRODUCTION

The growth of domestic firms in foreign markets depend greatly on their export performance as the volume of export rises as it is expected to have an impact on their future cash flows and profitability. Due to financial constraints, many firms could not produce in large quantity for domestic and international trade. When firms have access to the foreign market, it can encourage them to access more fund from financial markets to engage in large-scale production for meeting customer's demand. In other words, a rise in the volume of export can increase the demand for financial services which can accelerate the development of the stock market.

The knowledge about factors that influence the stock market will help in strategizing and improving their prospects as the growth objective of firms is one of the critical factors influencing investors' portfolio diversification. Despite a significant increase in the number of stock exchanges in the African region, they did not promote investment in the region as most are at their early stage of development. In fact, most of the African Stock markets are not developed enough to be able to offer long-term financing. It is argued that their low development can be attributed to the smaller size and non-liquidity of the stock markets [1] Additionally, Olaposi and Ahuru [2] argue

that in spite of the policy agenda to open the African financial market to foreigners, their performance is below expectation.

Moreover, the global financial crunch may have triggered a serious impediment to the stock market in the region with a various degree of severity. The 2008 financial crisis that started from the United States subprime mortgage loan multiplied to several markets and caused a drop in investors' sentiment. Due to the damaging effect of financial crises, Srivastava, Bhatia [3] examine that most markets have witnessed significant wealth attrition. In fact, previous literature reveals that the financial crisis has preceded a sizeable drop in foreign investment influx to Africa with a resulting loss in market capitalization [4]. Investors commonly consider a safe harbor that ensures future returns, thus, any case contrary to their expectation can ensue in divestment. Iqbal [5] argue that developing economies are not accountable for the financial crises but are critically influenced by the networks of commerce and finance. Similarly, Ali and Afzal [6] establish that the influx of net capital from developed to emergent economies documented an abrupt drop from the start of the financial crisis.

Needless to say, however, to improve the trade-related growth potential for Africa, taking an all-inclusive approach to harnessing the abundant natural resources of the continent becomes a vital issue for consideration. Sheridan [7] pointed out that development is multidimensional that cut across several aspects including investment, education and trading. Therefore, market competition and innovation can help in promoting sustainable growth both at the country and firm level. In addition, Regolo [8] contends that growth in the cross-country trade leads to significant market expansion of firms seeking diversification. Despite the expansion of international trade globally, the export performance of African countries has been disappointing. Ouedraogo and Sourouema [9] affirm that there is a low share of manufacturing export from Sub-Saharan Africa as most of the countries are undiversified and depend on single commodity export. This is challenging and is adversely affecting the region as foreign exchange generated from export can be utilized to promote domestic infant industries and embarking in social development projects.

Available statistics from the United Nation Conference on Trade and Development [10] reveals that the African countries performed below expectation due to failure to

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promote growth through diversification with most of the countries depending on one or a few commodities for export. Moreover, the Africa economic outlook [11]report indicates that the decline in commodity prices had a shocking impact on many commodity-exporting African economies. This support the assertion that countries isolated geographically from the world market may end up with lower per capita (Sachs and Warner, 1997). Therefore, expanding the African export horizon with more processed and manufactured goods remain critical for firms’ growth and sustainable development. In light of this development, this paper will empirically investigate whether export growth predicts stock market development in Africa employing a pooled mean group (PMG) model.

This paper makes three relevant contributions to the present literature. First, far less attention has been given to how export growth relates to stock markets despite the importance of export in promoting cross-country investment and diversification. Previous studies are silent on this relationship as the available literature were on the effect of export on economic growth [12, 13]. Another literature review was conducted on the influence of financial development on export performance and it was found it predicts the future growth of firms’ export[14].Contrary to the prior literature review, this paper provides empirical evidence that export growth has a positive and significant impact on the stock market growth. Secondly, this paper considers control for a structural break due to the 2008 global financial crisis and the findings suggest that the crisis has a negative impact on stock markets in the region.

Thirdly, stock market growth is multifaceted, thus, engaging a single proxy cannot encapsulate the entire advancement of the market. Levine [15]affirms the flaw of using a single proxy to characterise stock market development. To fill the rift of the existing literature, this paper uses a composite index to capture market capitalization, the stock traded and turnover ratio which are the major gauges of stock market development. The remainder of the paper is structured in the order as follows; section two explains the theoretical and empirical review, section three explains data and empirical method, section four is on empirical findings while section five concludes the paper.

II. LITERATURE REVIEW

Although the prevailing security market theories do not advocate precise issues forecasting the disparity of a stock market, the Arbitrage Pricing Theory (APT) by Ross [16] is the most appropriate theory that links stock market to its multiple risk features. The theory proposes that securities return is an element of investment vulnerability to several risk factors which implies that several risk factors explain fluctuations in a securities market. This theory is supported by Fama and French [17]that stated risk is multidimensional if assets are reasonably priced. Similarly, Chan, Hamao [18]posit that the earning prospect of firms is related to prevailing risk factors in returns.

The empirical test of the APT estimates how the

dependent variable of this study reacts to the variations in the selected independent series of the model. Thus, the existence of strong evidence confirms the rejection of null hypotheses of this study. It is however observed that the Arbitrage Pricing Model is silent on the underlying systematic risk factors that may have an influence on asset returns[19-21]. This allows inclusion of more risk factors that may have predictive power on stock markets. Similarly, Kazi [22]discloses that the APT model is applicable to any set of portfolios provided their number ‘n’ is much higher than the number ‘k’ of the common factors.

Therefore, this study selects export growth to see whether it has an impact on the African stock market development. The question of how export growth relates to the stock market in Africa remains unanswered despite the significance of international transactions. Since no nation is self-reliant including the advanced economies are dependent on their international trading partners. The theoretical link is that when there is a significant growth in the export of African countries, it would increase the revenue and expected future cash flows of firms in the region.

Therefore, the following equation expresses the drivers of stock market development in Africa.

$$R_{it} = \gamma_{it} + \varphi_{1t}F_{1t} + \varphi_{2t}F_{2t} + \varphi_{3t}F_{3t} + \varphi_{4t}F_{4t} + \varphi_{5t}F_{5t} + \varepsilon_{it} \dots \dots \dots (1)$$

Here R_{it} stands for stock market development for period t , γ_{it} is the risk-free rate of return, $\varphi_{1t}, \varphi_{2t}, \varphi_{3t}, \varphi_{4t}$ and φ_{5t} are the sensitivity of the risk factors of the model. The $F_{1t}, F_{2t}, F_{3t}, F_{4t}$ and F_{5t} respectively are for export growth and the control variables of exchange rates, interest rates, corruption and financial crisis while ε_{it} is the idiosyncratic error term of the model. Hence the prior expectation of the parameters of the equation is

hypothesized as
 $\varphi_1 > 0, \varphi_2 > 0, \varphi_3 < 0, \varphi_4 < 0$ and $\varphi_5 < 0$

respectively are for the explanatory variables of this study. On the other hand, the review of empirical literature uncovers little effort was made on how export growth predicts stock market development. For example, Njikam [12]examines the relationship between the export market destination and firm performance in SSA and report that the intra-African commerce is negative while export to non-African countries has a positive effect on firms export performance. Similarly, Araújo and Ferreira [23]examine the topology of African export and found intra-African trade as a critical factor in determining export performance. Likewise, Decreux and Spies [24]report that intra-African market diversification will enhance value chain with greater opportunity to reduce the export of raw material and promote exports of manufactured and processed goods. In fact, Regolo [8]states that trade growth is a prerequisite to market expansion. These findings suggest ways of expanding and promoting investment in Africa from within the region when adequate measures are put in place. However, other studies [25, 26] emphasize the contribution of Aid for Trade (AfT) in promoting African export and integration. The



studies reveal that apart from education and training components, most of the aids for trade to Africa do not make a significant contribution to export.

Moreover, it is found that financial development predicts future growth of firms' export[14], and it impacts positively on export technical complexity[27]. These studies further revealed that financial growth is a crucial factor that explains the firm's ability to engage in foreign export. This also shows that due to additional expenses, exports are highly contingent on finance rather than on domestic sales. On the other hand, Vo [28] assess the effect of foreign investors trading on stock returns and found the presence of a positive relationship.

In summary, the existing literature focused on the determinants of export performance while other literature is on how financial development predicts export performance. There is a real shortage of the empirical literature on the connection between export growth and stock market development which serves as motivation for this paper. Hence, the export increase impacts positively on the performance, earnings and future equity prices. This paper examines the impact of export growth on the stock market expansion using panel data evidence from the selected nations in Africa.

III. DATA AND EMPIRICAL METHOD

To explore the relationship between export development and stock market growth, this paper acquires data from the World Development Indicators[29] with World Governance Indicators [30] and the Financial Development and Structure databases[31]. The annual sample data were taken from the 12 African countries over the time period 1996 to 2016 and the restriction to the 12 countries is due to data availability. The sample countries are Côte d'Ivoire, Kenya, Egypt, Malawi, Ghana, Mauritius, Namibia, Morocco, Nigeria, Uganda, South Africa and Zambia. Furthermore, a composite index was created for stock market development using the market capitalization, the stock traded, and stock turn over indicators. The main explanatory variable (export growth) is calculated by the average annual growth rate of export. To strengthen the relationship, the paper controls for exchange rates, interest rates, corruption and the 2008 global financial meltdown. In addition, the structural break in the model due to the financial crisis was represented by 1 for break dates and 0 for the pre-crisis period.

However, this paper theorizes a positive relationship between export development and stock market growth. Apart from the exchange rates, the paper hypothesized a negative relationship for all the other control variables (interest rates, corruption and break) to the stock market development based on the findings of previous literature[32-34].

Moreover, the Pooled mean group (PMG) model of [35] was used to explore the long-run consequence of export growth on stock market development in Africa. This technique (PMG) has numerous advantages over traditional/static models. For example, due to the common topographies of the African economies, the model is appropriate as the comparison is expected to influence the

long-term coefficient. Also, the model constrains the long-run estimates to be similar regardless of the order of integration of the variables. Thus, equation 2 represents model specification for this paper which includes the dependent variable, an independent variable and a set of control variables as follows:

$$SMD_{it} = \alpha_0 + \alpha_1 EPG_{it} + \alpha_2 ER_{it} + \alpha_3 IR_{it} + \alpha_4 CR_{it} + \alpha_5 BRK_{it} + \varepsilon_{it} \dots \dots \dots (2)$$

Where SMD stands for stock market development, EPG is for export growth, ER denotes exchange rates, IR characterizes interest rates, CR represents corruption and BRK stands for structural change. The epsilon ε means error term, whereas i characterises country and t denote the period. Nevertheless, $i = 1, 2, 3, \dots, 12$ for the selected African countries while $t = 1, 2, 3, \dots, 21$ is for the number of years covered. Therefore, the unrestricted PMG model specification is presented below:

$$SMD_{it} = \sum_{n=1}^r \theta_{ij} SMD_{i,j-g} + \sum_{n=1}^s \gamma'_{ij} C_{i,g-1} + \delta_i + \varepsilon_{it} (3)$$

Here SMD is the dependent variable of stock market development, $C_{i,g-1}$ is the vector of explanatory variables (Export growth, Exchange rates, Interest rates, Structural break and Corruption). The symbol δ_i represents country-specific effects while μ_i denotes fixed effect parameterization. Likewise, the equation can be expressed as a VECM model as follows:

$$\Delta SMD_{it} = \gamma_i (SMD_{it} - SMD_{it-1} - \delta_i C_{i,g-1} + \delta_i + \varepsilon_{it}) + \sum_{n=1}^{r-1} \theta_{ij} \Delta \rho_{i,g-s} + \sum_{n=1}^{s-1} \gamma'_{ij} \Delta C_{i,g-s} + \varepsilon_{it} \dots \dots \dots (4)$$

Where γ_i represents the error correction term coefficient and δ_i signifies long-run parameters which are presumed to be common across entities. However, the primary concern is the speed of adjustment, γ_i and coefficient of the long-run estimates. The model is assessed using pooled maximum likelihood estimation to compute the average long-run estimates. Therefore, the coefficient of the error correction term is supposed to be negative and significant if the model displays a usual return to long-run equilibrium. In fact., the estimates of PMG parameters are reliable and asymptotically normally dispersed for both stationary and non-stationary regressors [35].

IV. EMPIRICAL FINDINGS

Since spurious regression estimate is not undesirable[36], this study uses the Im, Pesaran [37] unit root test and the results specify that SMD and ER are having unit root problem while the other variables are integrated at level as revealed in Table 1. To confirm their integration, the t-statistic should be greater than the critical value at all levels of significance (1%, 5% and 10%). Nevertheless, the variables with the unit root problem become stationary after first difference.

Table 2. Pooled Mean Group Estimates



Variable	Coefficient	Std. Error	Z-Statistic	Prob.
EPG	0.017	0.006	3.01	0.003
ER	0.007	0.002	3.19	0.001
IR	-0.118	0.013	-8.72	0.000
CR	-2.36	0.235	-10.01	0.000
BRK	-1.134	0.143	-7.91	0.000
ECT	-0.105	0.045	-2.29	0.022

Table 1 shows the variables are integrated of mix-order thus estimating the pooled mean group (PMG) model is appropriate to regulate how much of equilibrium is being adjusted every year, as well as to investigate the long-run relationship amongst the variables.

Table 1. Stationarity Test Results

Variables	I(0)		I(1)	
	C	C&T	C	C&T
SMD	-1.253	-1.701	-2.98***	-2.998***
EPG	-1.405	-2.196**	-4.612***	-4.620***
ER	-1.282	-1.805	-3.248***	-3.239***
IR	-1.981**	-1.859*	-3.744***	-4.013***
CR	-2.038**	-2.040**	-3.816***	-3.961***
BRK	-0.809	-2.089**	-4.359***	-4.235***

Note: C and T stand for constant and trend while *, ** and *** specify rejection of null hypothesis at 1%, 5% and 10% levels of significance, correspondingly.

Table 2 indicates the coefficient of the error correction term (ECT) is in accordance with the Pesaran, Shin [35] as negative and statistically significant which is a condition for converging to a long-run equilibrium. The coefficient (-0.105) explains that 10.5 percent of the disequilibrium is corrected every year. Similarly, the coefficient of export growth (EPG) has a positive and significant effect on stock market development (SMD). The parameter estimates reveal that a one percent increase in EPG will bring about 0.017 percent increase in SMD in line with the set hypothesis and the Ross [16] Arbitrage Pricing Theory (APT). Despite the absence of empirical findings on the EPG-SMD relationship, the result is closely related to the findings of Ee [13] that show export has a significant positive influence on the economic growth of Africa. It is also related to the Vo [28] study that reveals foreign investors are positive response traders on the stock market.

This finding reveals the benefit of entering the export market to firms and the entire economy. In other words, a rise in export brings in more foreign resources and enhances nation balance of payment. Therefore, to improve the trade-related development for Africa, an inclusive approach is needed to harness the abundant untapped natural resources. Sheridan [7] asserts that development is multifaceted which cut across areas like education, investment and trade. Despite the global trade expansion, the performance of African economies has been discouraging and is more of raw material export. Hence taking proactive measures becomes crucial to improve export performance and expand domestic investment. This can assist the region against future foreign divestment due to a financial crisis or economic instability.

Furthermore, the findings show the control of a structural break due to the global fiscal crisis in 2008 exerts a negative impact on the development of the stock market in Africa. This indicates African markets also react negatively to the crisis that originated in the United States. The control variables of interest rates and corruption also have a negative impact on stock market development with a coefficient of -0.118 and -2.36 respectively while the relationship between exchange rates and stock market development is positive and statistically significant. Movement of exchange rate by one percent brings an increase in stock market development by 0.007 percent in accordance with the findings of the previous literature[32-34].

V. CONCLUSION AND POLICY IMPLICATIONS

This paper studies the impact of export growth on stock market development in 12 African countries. The findings reveal that export growth is a strong forecaster of stock market development in Africa. This is an indication that for nation’s financial sector to develop, facilitating export with trading partners becomes necessary in the long run. This is because, generally, nations are not self-sufficient and the African countries heavily depend on imported consumer and manufacturing goods. Needless to say, however, the African continent is less diversified and majorly exports raw commodities to import processed goods which is contrary to nations aiming at export diversification to increase the ratio of international transactions.

These findings have two main implications to revamp export as well as to promote the development of African stock markets. The authorities concern should expedite actions that will result in promoting intra-African export through investment in modern technology to transform the infant industries of the continent and reduce importation. When domestic firms start exporting processed goods in large quantity, it will boost the inflow of foreign exchange and provide job opportunities to the teeming unemployed youths. Secondly, export growth will address the issue of heavy dependence on imported goods, promote new avenues for domestic firms to access additional capital in the financial markets and boost stock market development to guard against future crisis and instability.

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