

Full Length Research Paper

Capital market liberalisation and capital formation: Time-Series evidence from Sub-Saharan Africa

Eguolo May Vanni¹, Freeman Oghenerume Orubu^{2*}, Emmanuel Agbavwe²

¹Department of Economics, University of Aberdeen, Scotland, UK.

²Department of Business administration and Management, Delta State Polytechnic, Ozoro, Nigeria.

Accepted 7 May, 2019

The aim of this study is to empirically investigate the relationship between capital market liberalisation and capital formation in five Sub-Saharan African countries. Annual time series data covering a period of twenty six years from 1988 to 2013 is obtained from the World Bank's World Development Indicators and the IMF's International Financial Statistics. The study employs the Johansen cointegration procedure within a VAR framework and Granger causality testing in order to examine the relationship between capital market liberalisation indicators and capital formation. The results provide very limited support to the view that capital market liberalisation is a very important determinant of capital formation. The results also show some evidence of unilateral causality. The study implies that liberalising capital markets of countries within the Sub-Saharan African region is by no means sufficient to boost capital formation or investment levels in the region. Furthermore, the findings strongly indicate that the effects of capital market liberalisation differ across countries, suggesting that the results from cross-sectional studies which consider all countries as identical entities should be interpreted with caution.

Key Words: Capital Market Liberalisation, Stock market liberalisation, capital formation, Sub-Saharan Africa, Time series analysis.

INTRODUCTION

The abrogation of interest rate controls was the earliest policy measure indicating a country's move towards financial liberalisation. During the 1950s and 1960s, the government of developing countries controlled interest rates in order to generate financial resources required to finance government budget deficits and for stabilisation purposes (World Bank, 2005). However, by the early 1970s, these so-called government interventions were largely criticized by proponents of the financial liberalisation hypothesis who suggested that developing countries should move away from financial repression towards financial liberalisation in order to boost their levels of economic activity and growth.

Ever since the McKinnon (1973) and Shaw (1973) financial liberalisation hypothesis which criticised financial repression as the cause of unsatisfactory levels of growth and development especially in

developing economies, the literature has slightly progressed from focusing on the public sector and credit markets towards the liberalisation of debt and equity markets. Liberalising a country's capital or stock market is also referred to as capital market liberalisation (Beck and Levine, 2004) and in recent years, the role of capital market liberalisation in promoting capital formation and economic growth has been highly debated.

Also referred to as international financial liberalisation, stock market liberalisation, equity market liberalisation or external financial liberalisation, there exists several definitions of capital market liberalisation. Bekaert et al (2003) define capital market liberalisation as a situation whereby the government of a country grants overseas investors the freedom to trade in the domestic capital market without restrictions, while granting domestic residents the freedom to trade in foreign capital markets. Ghosh (2005) also gives a comprehensive definition. She defines capital market liberalisation as encompassing the following policy measures:

*Corresponding Author E-mail: oruburume@gmail.com

- Policies which permit foreigners to acquire domestic financial assets such as debts or equities.
- Policies which permit indigenous residents and firms to acquire foreign financial assets.
- Policies which support and authorise foreign currency assets to be held and traded in the domestic economy without restrictions. This measure according to Ghosh, is the most severe form of capital market liberalisation and has only been enforced in a few countries.

There are two contrasting views which exist in the capital market liberalisation literature. In the first view, capital market liberalisation promotes effective and efficient international resource allocation and generates beneficial effects. Financial resources move from developed countries which have abundant capital with low returns on capital to developing countries where capital is scarce but the return on capital is high. According to this view, the flow of financial resources from developed countries into developing countries is beneficial to the developing country in several ways: by reducing capital costs, improving stock market liquidity and development, increasing domestic investments, raising living standards and consequently improving economic growth. Some economists who give credence to this view include Greenwood and Smith (1997), Bencivenga et al. (1995), Obstfeld (1994, 1998) and Henry (2000).

In the alternate view, capital market liberalisation may lead to a deterioration of the real economic indicators for several reasons. For instance, capital market liberalisation does not result in a more efficient allocation of resources because international capital flows especially portfolio flows have little or no connection to real economic activity. Some proponents of this view include Stiglitz (2000) who maintains that stock market liquidity will not enhance incentives for acquiring information about firms or exerting corporate governance; Devereux and Smith (1994) who maintain that greater risk sharing through internationally integrated stock markets may actually reduce the rate of savings and consequently reduce economic growth rates. Stiglitz (2000) is of the view that these so-called predictions of those who advocate capital market liberalisation are precise, but not practical, especially when historical experience is considered. The author asserts that it is less likely that capital market liberalisation will promote economic growth simply because long term investments cannot take place on the basis of short term capital.

From the mid-1980s, several countries in Sub-Sahara Africa adopted structural adjustment programmes within the framework of the IMF supported Structural Adjustment Facility/Enhanced Structural Adjustment

Facility and the World Bank's Structural Adjustment Credit/Loan programmes. One key feature of these programmes was the drive for adaptation of measures which encourage financial liberalisation. Beginning from the 1990s, majority of developing countries in the Sub-Saharan African region liberalised their capital markets. On common grounds, these Sub-Sahara African countries opened up their capital markets to foreign participation in a bid to increase savings mobilisation and capital formation in order to improve investment levels and consequently boost economic growth.

In recent times however, the impact of capital market liberalisation on capital formation has been regarded as highly controversial and less understood. A justification for this claim is that theory yields no precise indication of whether liberalising a country's capital market would enhance or inhibit growth. Although, a few researchers have investigated the role of different financial liberalisation policies on growth in the Sub-Saharan African region (see for instance Fowowe, (2008); Misati and Nyamongo (2012); Ghazanchyan and Stotsky (2013); Menyah et al. (2014); research on the effects of capital market liberalisation on capital formation in the region is very limited. Furthermore, majority of the existing empirical studies on the subject matter are cross sectional and their results have to be interpreted with caution especially in developing countries due to individual country differences. Developing countries especially those in Sub-Sahara Africa have different underlying macroeconomic and structural characteristics, e.g. the level of economic development, the size and structure of the financial sector, population size and growth levels, which should be explicitly investigated and modelled. This research project aims at filling a gap in the literature by providing time-series empirical evidence on the effects of capital market liberalisation on capital formation in five Sub-Saharan African countries in a single econometric framework after taking country differences into consideration.

The rest of this paper is organized as follows: Section two reviews the empirical literature on capital market liberalisation and capital formation. In section three, the empirical framework including the methodology, variables and data employed in this research paper is presented. Thereafter, the results are presented and discussed in section four while section five summarizes and concludes.

Empirical Literature Review

The assumption that capital market liberalisation boosts capital formation has been highly debated in the literature and this area of research has received a fair amount of attention in recent years. According to Kraay (1998), empirical evidence on the gains of capital

market liberalisation in the financial liberalisation is scarce and there could be two reasons for this. Firstly, it may well be that the positive effects of capital market liberalisation are outweighed by the greater volatility that the introduction of the policy brings and secondly, that the positive benefits of capital market liberalisation can only be attained in countries with highly developed financial systems and financial markets, as well as very sound financial sector policies and institutions.

One of the earliest empirical studies which supports capital market liberalisation is by Levine and Zervos (1998). The authors examine the impact of capital market liberalisation on stock market size, liquidity, volatility and international integration; and also investigate the empirical relationship between stock market size, liquidity, volatility and international integration within a framework allowing for regulations concerning information disclosure, accounting standards and investor protection. Their dataset comprises 16 emerging market economies for the period 1986 to 1993. Levine and Zervos use 6 indicators and 2 indexes of stock market development. Results from their cross-country regression analysis show that stock markets become larger, more liquid, more volatile and more internationally integrated following capital market liberalisation. The authors also find that capital market liberalisation boosts stock market liquidity which consequently improves capital formation and boosts long run economic growth levels.

Beck and Levine (2004) have challenged the findings of Levine and Zervos (1998) on grounds that their studies have various econometric shortcomings. For instance, the authors argue that the OLS approach adopted by Levine and Zervos (1998) does not control for simultaneity bias and country specific effects. They also argue that the value traded ratio used by Levine and Zervos (1998) as an indicator of stock market development is not a good indicator of market liquidity as it measures stock market trading relative to the size of the economy. Furthermore, they maintain that as theory does not suggest that mere listing of shares will influence financial resource allocation and growth, market capitalisation as a share of GDP may not be a very good measure of stock market development. Hence, Beck and Levine (2004) use the Stock Turnover ratio measure of market liquidity as a measure for stock market development in their investigation of the long run effects of stock markets and financial intermediaries on economic growth in a panel of 40 countries (and 146 observations) for the period 1976 to 1998. Other explanatory variables included in their analysis include real GDP per capita, average years of schooling, government consumption, trade openness, inflation rate, black market premium and bank credit. The authors find that both capital markets and banks have a positive impact on economic growth and they maintain

that their findings are not as a result of simultaneity, unobserved country-specific effects or omitted variables.

While investigating the effects of capital market liberalisation on financial and macroeconomic development, Fuchs-Schundeln and Funke (2003) consider a panel of twenty seven countries which liberalised their capital markets between 1980 and 1995. Similar to the results from Henry (2000), the authors find that capital market liberalisation is associated with a temporary increase in investment growth of approximately 14 percentage points cumulatively during the first four years following the adoption of the policy and a cumulative 4 percentage point increase in real per capita GDP growth. The authors also find that economic growth tends to be higher if institutional reforms precede capital market liberalisation policy.

Naceur et al (2008) also examine the impact of stock market liberalisation on economic growth, investment and stock market development in eleven MENA countries for the period 1979 to 2005, using panel data methods. Their results strongly indicate that stock market liberalisation has no effect on economic and investment growth in the short or long run, whereas the impact on stock market development is negative in the short run but turns positive in the long run. However, when the authors include certain preconditions for stock market liberalisation, they find that a well-developed stock market, less government intervention in the financial sector as well as partial trade liberalisation reinforces the positive effects of stock market liberalisation on stock market development.

In a very recent study by Kinuthia and Etyang (2014), a time series empirical investigation is carried out to ascertain the effects of capital market liberalisation on the functioning of the domestic stock market; and the relationship which exists between capital market liberalisation, stock market performance and economic growth in Kenya. The authors use quarterly time series data for twenty two years from January 1991 to December 2012 and apply VAR and Granger causality tests to investigate the long run relationship among the variables of interest. Kinuthia and Etyang (2014) find a one way causality from stock market development to economic growth. Their results also suggest that capital market liberalisation indirectly impacts on economic growth through its benefits on investment in Kenya.

An examination of the empirical studies on the impact of capital market liberalisation on capital formation or investment shows that there are inconsistencies in the results. The disparity evident in the empirical literature may be associated with different sample periods, the country coverage, the type of data and the empirical methods employed. Essentially, this paper aims at informing the theoretical discourse on the

consequences of capital market liberalisation on capital formation as reflected in the empirical record, providing empirical evidence, in a single econometric framework while taking into account country specific heterogeneities by using time series estimation techniques. However, by highlighting the relative success or failure of policy recommendations arising from the ratification of the policy in the selected Sub-Saharan African countries, it provides evidence on the profound economic and sociological consequences of such policies as these macroeconomic aggregates affect the current and future wellbeing of entire populations.

EMPIRICAL FRAMEWORK

The main objective of this research paper is to investigate the effects of capital market liberalisation on capital formation. In this section, the main focus is to specify the empirical model used to examine the relationship, define the variables, explain the methodology or research design employed in the study and discuss the data. Hence, this section is further divided into three sub sections. In the first sub section, the empirical model is specified and the variables are defined. Sub section two explains the empirical methods employed while sub section three discusses the data.

Specification of the empirical model

The main variables in the empirical analysis are measures of capital market liberalisation and a measure of capital formation. Gross Capital Formation (% of GDP), formerly known as gross domestic investment is used as a measure of capital formation, denoted as CF. This measure of capital formation is in line with other studies in the financial liberalisation literature (see Kraay, 1998; and Misati and Nyamongo, 2012).

In order to capture the level of economic growth in each country, the real GDP per capita, denoted by GDP is used. The GDP variable is used as an indicator of economic growth in line with the literature (see Klein, 2005; Klein and Olivei, 2006; Shahbaz et al, 2008). Economic theory suggests that at the macro level, small changes in GDP could cause significant changes in investment or capital formation levels.

Market capitalization of listed companies (% of GDP) is used as an indicator of the size of the capital market, denoted by MC. The MC measure is one of the most widely used quantitative measures of stock market development (see for instance Levine and Zervos,

1998; and Edison et al, 2002). Theory suggests that the size of the stock market is positively correlated with

risk diversification and capital formation. Hence, MC is expected to have a positive relationship with CF.

Total Value of Stocks Traded (% of GDP) is used as a measure capital market liquidity (as in Levine and Zervos, 1998; and Achy, 2003), denoted by STOCK. The World Bank (2014) asserts that that the STOCK variable complements the MC variable by showing whether the size of the market is matched by trading. Theory suggests that liquidity in the capital market acts as an incentive to invest and provides more efficient allocation of resources (see Levine, 1991). Hence, STOCK is expected to have a positive relationship with CF. Both MC and STOCK are the two indicators of capital formation used in this research paper.

In order to avoid possible problems which may arise as a result of omitted variables, inflation, denoted by INF is included as a control variable in the regression model. Hence, the empirical model comprises one dependent variable (CF) and four explanatory variables (MC, STOCK, GDP and INFL).

Based on the above discussion, the empirical model takes the form below:

$$CF_t = \beta_1 + \beta_2 MC_t + \beta_3 STOCK_t + \beta_4 GDP_t + \beta_5 INF_t + u_t \quad (1)$$

Where CF denotes capital formation, MC denotes market capitalisation of listed companies, STOCK denotes the value of stocks traded, GDP denotes real GDP per capita and INF denotes inflation.

Empirical methods

The empirical analysis begins by applying the ordinary least squares (OLS) procedure to estimate the time series model (Equation 1) in order to examine the short-run effects of capital market liberalisation on capital formation for each of the five Sub-Saharan African countries being investigated. Thereafter, stationarity tests are performed using the standard Augmented-Dickey fuller test procedure in order to ascertain whether or not the time series variables are non-stationary. Following the unit root testing, this research paper proceeds to investigate whether cointegration exists among the variables in the model for each of the five countries using the Johansen cointegration technique within a VAR framework as in Bender and Theodossiou (1999). The order of the underlying VAR is determined using the Akaike information criterion and the Schwarz information criterion.

The final stage of the time series analysis is to investigate the causal relationship between the dependent variable (CF) and the explanatory variables (MC, STOCK, GDP and INF). One of the main benefits of carrying out causality tests among variables is that it enables policy makers to ascertain the consequences of various actions in the economy, such as the

Table 1: OLS Estimation Results

Country/Variable	MC	STOCK	GDP	INF
Ivory Coast	-0.004 (0.112)	5.459* (3.199)	0.001 (0.004)	0.219* (0.129)
	[-0.031]	[1.706]	[0.049]	[1.704]
Kenya	-0.096 (0.106)	-0.027 (1.031)	0.007* (0.003)	0.078 (0.082)
	[-0.906]	[-0.026]	[2.005]	[0.953]
Nigeria	-0.089 (0.114)	-0.086 (0.421)	0.003* (0.001)	0.029 (0.031)
	[-0.784]	[-0.205]	[4.072]	[0.935]
South Africa	0.014* (0.008)	0.011 (0.011)	0.007* (0.001)	0.268* (0.089)
	[1.682]	[0.951]	[3.074]	[3.018]
Zimbabwe	-0.017 (0.014)	-0.148 (0.148)	0.019* (0.007)	-0.077 (0.066)
	[-1.201]	[-0.999]	[2.819]	[-1.172]

Note: Dependent Variable is Capital formation (CF). MC denotes market capitalisation of listed companies; STOCK denotes value of stocks traded; GDP denotes real GDP per capita; INF denotes inflation. Values in () are standard errors; values in [] are t-statistics. *, ** and *** denote significance at 10%, 5% and 1% respectively.

ratification of new policies. For instance, the Granger causality test could be used to ascertain whether capital market liberalisation indicators are likely associated with higher levels of capital formation.

The data

The data for this research has been obtained from the 2014 World Bank's World Development Indicators for Ivory Coast, Kenya, Nigeria, South Africa and Zimbabwe for the period 1988 to 2013. Usually, the quality of data on macroeconomic and financial indicators is a concern for some countries in Africa which are characterised by weak data collection mechanisms. However, data contained in the World Bank's dataset contains the most complete and reliable time series for macroeconomic and financial indicators

for Sub-Sahara Africa that are currently available, which have been collected from reliable sources. Where there are gaps in the World Bank's dataset, annual time series data has been collected from the IMF's International Financial Statistics.

Discussion of empirical results

Ordinary Least Squares (OLS) Estimation Results – Short Run Relationships

The empirical analysis begins with the investigation of the short-run relationships which exist between the dependent variable (capital formation) and the explanatory variables (market capitalisation, value of stocks traded, real GDP per capita and inflation) using the OLS estimation procedure. Table 1 presents the results of the OLS estimation between the dependent

Table 2: Unit Root Test Results: ADF Procedure

Country	Variable	test statistic	Result
Ivory Coast	CF	-2.879**	NS
	MC	-0.921	NS
	STOCK	-1.549	NS
	GDP	-0.915	NS
	INF	-3.649***	NS
Kenya	CF	-3.024***	NS
	MC	-2.018	NS
	STOCK	-1.639	NS
	GDP	2.029	NS
	INF	-2.733**	NS
Nigeria	CF	-2.403	NS NS NS
	MC	-2.592	NS NS NS
	STOCK	-2.762**	NS NS NS
	GDP	2.298	NS
	INF	-2.328	NS
South Africa	CF	-1.796	NS NS NS
	MC	-2.636**	NS NS NS
	STOCK	-1.521	NS NS NS
	GDP	-1.081	NS
	INF	-1.798	NS
Zimbabwe	CF	-1.617	NS S
	MC	-4.139***	NS
	STOCK	-1.527	NS
	GDP	-0.939	NS
	INF	-4.576***	S

Note: The test equations include both intercept and trend terms. The Optimal lag length in the test equation is based on the Schwarz information criterion. *, ** and *** denotes significance at 10%, 5% and 1% respectively. S denotes stationary; NS denotes non-stationary.

variable and the explanatory variables.

The results strongly indicate that in Kenya, Nigeria, and Zimbabwe, market capitalisation of listed companies (SMC) and value of stocks traded (STOCK) are inversely related to capital formation, as can be seen from the negative coefficients. This finding is in contrast with theoretical prediction and prior expectation. In Ivory Coast, market capitalisation of listed companies is also inversely related to capital formation, but the value of stocks traded has a positive relationship with capital formation in line with prior expectation. The OLS estimation result for South Africa strongly suggests a positive relationship between the market capitalisation of listed companies on capital formation; and between the value of stocks traded and capital formation as theory predicts. Furthermore, real GDP per capita, the measure of economic growth has a

direct short run relationship with capital formation in all the five Sub-Saharan countries being examined. The results also suggest that the rate of inflation is directly related to capital formation in Ivory Coast, Kenya, Nigeria and South Africa; and inversely related to capital formation in Zimbabwe.

UNIT ROOT TEST RESULTS

As part of the empirical analysis, all the variables in the capital market liberalization capital formation model are subjected to stationarity or unit root testing in order to ascertain the order of integration of each of the variables. In Table 2, the results of the unit root tests for capital formation, market capitalisation of listed companies, value of stocks traded, real GDP per capita

Table 3: Cointegration test results: Johansen Procedure

Country	Variables	Hyp. CEs	Eigen value	Trace	Coint.Equ.
Ivory Coast	CF, MC, STOCK, GDP, INF	None *	0.811	81.644	1
		At most 1	0.657	41.624	
		At most 2	0.344	15.92	
		At most 3	0.208	5.791	
		At most 4	0.008	0.193	
Kenya	CF, MC, STOCK, GDP, INF	None *	0.759	83.517	2
		At most 1 * At most 2	0.636	49.353	
			0.511	25.078	
			0.278	7.909	
		At most 3			
Nigeria	CF, MC, STOCK, GDP, INF	At most 4	0.004	0.107	2
		None *	0.922	133.162	
		At most 1 *	0.835	71.858	
		At most 2	0.561	28.627	
		At most 3	0.195	8.819	
South Africa	CF, MC, STOCK, GDP, INF	At most 4	0.139	3.599	2
		None *	0.714	84.557	
		At most 1 * At most 2	0.655	54.517	
		At most 3	0.546	29.008	
			0.235	10.062	
Zimbabwe	CF, STOCK, GDP	At most 4	0.14	3.625	1
		None *	0.689	34.814	
		At most 1	0.166	6.761	
		0.095	2.402		

Note: The order of the VAR- the optimal lag length was determined using the Akaike information criterion and the Schwarz information criterion. *, ** and *** denotes significance at 10%, 5% and 1% respectively

and inflation for each of the countries are presented.

The standard Augmented Dickey-Fuller (ADF) unit root test procedure is used and the optimal lag length is selected based on the Schwarz information criterion as in Bender and Theodossiou (1999). The null hypothesis is that the variable has a unit root. As can be seen from the results of the ADF test, in almost every case, the null hypothesis is accepted, suggesting that all the variables for each of the countries tested are nonstationary at level, i.e., I(1) variables. The only exception is market capitalisation of listed companies (MC) and inflation (INF) in Zimbabwe, which does reject the null hypothesis at one percent in both cases, and are therefore I(0) variables.

Cointegration test results (Johansen methodology):

Table 3 reports the result of the cointegration tests using the multivariate Johansen cointegration test procedure within a Vector Autoregressive (VAR) framework. Since the primary concern of this research interested in the null hypothesis that the variables are not cointegrated ($r = 0$) against the alternative hypothesis of one or more cointegrating equations ($r > 0$). Thus, the trace statistic is used.

As in Bender and Theodossiou (1999), only the results for the I(1) variables are reported because an

I(0) variable or series cannot be cointegrated with an I(1) variable or series. In the Johansen cointegration test, the existence of a cointegrating vector is signified by a trace test value exceeding the critical value of 5% level of significance. This means that the cointegration tests are statistically significant at 5% level for determining the long run relationship between the dependent variable and explanatory variables. The decision rule is that if the trace statistic exceeds the 5% significance level (or the 95% critical value), then the null hypothesis of no cointegrating vectors should not be rejected. However, if the trace statistic appears to below 5% level of significance, the null hypothesis is rejected. An optimal lag length of one was selected for all the five countries, based on the Akaike information among the primary variables of interest, one is simply paper is to ascertain whether cointegration exists criterion and the Schwarz information criterion. In the case of Zimbabwe, the MC and INF variables are included from the Johansen cointegration test, since both variables are I(0) variables, hence, only the results of CF, STOCK and GDP are reported. However, all the Ivorian, Kenyan, Nigerian and South African variables are I(1) variables hence, all the variables are included in the cointegration test equation for each of the four countries.

Table 4: Causality Testing: Granger Causality Test Results

Country	Null Hypothesis	F-Stat	Decision
Ivory Coast	DMC does not Granger Cause DCF	0.137	Do not reject
	DCF does not Granger Cause DMC	1.871	Do not reject
	DSTOCK does not Granger Cause DCF	1.144	Do not reject
	DCF does not Granger Cause DSTOCK	0.929	Do not reject
	DGDP does not Granger Cause DCF	0.554	Do not reject
	DCF does not Granger Cause DGDP	0.123	Do not reject
	DINF does not Granger Cause DCF	0.432	Do not reject
	DCF does not Granger Cause DINF	0.774	Do not reject
Kenya		8.611 ^{***}	Reject Null
	DMC does not Granger Cause DCF DCF does not Granger Cause DMC	0.862	Do not reject
	DSTOCK does not Granger Cause DCF DCF does not Granger Cause DSTOCK	4.632 ^{**}	Do not reject
	DGDP does not Granger Cause DCF	0.679	Do not reject
		0.668	Do not reject
	DCF does not Granger Cause DGDP	4.489 ^{**}	Reject Null
	DINF does not Granger Cause DCF	0.135	Do not reject
	DCF does not Granger Cause DINF	1.413	Do not reject
Nigeria	DMC does not Granger Cause DCF DCF does not Granger Cause DMC	5.646 ^{**}	Reject null
	DSTOCK does not Granger Cause DCF DCF does not Granger Cause DSTOCK	0.056	Do not reject
	DGDP does not Granger Cause DCF	4.117 ^{**}	Do not reject
		2.659	Do not reject
		0.494	Do not reject
	DCF does not Granger Cause DGDP	2.234	Do not reject
	DINF does not Granger Cause DCF	2.509	Do not reject
	DCF does not Granger Cause DINF	1.486	Do not reject
South Africa	DMC does not Granger Cause DCF DCF does not Granger Cause DMC	0.634	Do not reject
	DSTOCK does not Granger Cause DCF DCF does not Granger Cause DSTOCK	1.089	Do not reject
	DGDP does not Granger Cause DCF	0.824	Do not reject
		0.024	Do not reject
		0.926	Do not reject
	DCF does not Granger Cause DGDP	0.51	Do not reject
	DINF does not Granger Cause DCF	0.595	Do not reject
	DCF does not Granger Cause DINF	0.471	Do not reject
Zimbabwe	MC does not Granger Cause DCF DCF does not Granger Cause MC	0.838	Do not reject
	DSTOCK does not Granger Cause DCF DCF does not Granger Cause DSTOCK	0.42	Do not reject
	DGDP does not Granger Cause DCF	0.219	Do not reject
	DCF does not Granger Cause DGDP	1.065	Do not reject
	INF does not Granger Cause DCF	0.607	Do not reject
	DCF does not Granger Cause INF	2.661	Do not reject
		1.455	Do not reject
		1.193	Do not reject

Note: *, ** and *** denotes significance at 10%, 5% and 1% respectively.

The results from the Johansen cointegration test procedure strongly indicate that in all the countries, there exists at least one cointegrating equation and the null hypothesis of no cointegration cannot be rejected in any of the countries. For instance, there is one cointegrating equation in Ivory Coast, two cointegrating equations in Kenya, two cointegrating equations in Nigeria, two cointegrating equations in South Africa and one cointegrating equation in Zimbabwe.

Testing for causality (Granger causality tests): As part of the investigation of the long run relationship between capital market liberalisation and capital formation, the Granger causality test procedure is applied. Granger causality tests show the causal relationship between or among variables in econometric

models. The Granger causality test is run using stationary variables. In other words, the variables enter the model according to their order of integration. For instance, in Ivory Coast, DCF, DMC, DSTOCK, DGDP and DINF shows that capital formation, market capitalisation of listed companies, value of stocks traded, real GDP per capita and inflation were differenced once in order to become stationary. Same applies to Kenya, Nigeria and South Africa. However, in the case of Zimbabwe, DCF, DSTOCK and DGDP shows that all the three variables were differenced once, while MC and INFL did not require any differencing as both variables are stationary at level. The results of the Granger causality tests are presented in Table 4.

SUMMARY OF FINDINGS AND CONCLUSION

This research paper has examined the relationship which exists between capital market liberalisation and capital formation using data from five Sub-Saharan African countries for the period 1988 to 2013. In order to ascertain the short run relationship among the variables of interest, the study employs the ordinary least squares estimation procedure and in order to ascertain the long run relationship, the study employs the Johansen cointegration technique and Granger causality tests. The results strongly indicate that while capital market liberalisation impacts positively on capital formation in the short run in South Africa, it is inversely related to capital formation in Ivory Coast, Kenya, Nigeria and Zimbabwe in the short run.

In the long run analysis, the multivariate Johansen cointegration test results indicate the presence of cointegration among the variables of interest in all of the five countries tested. However, results from the Granger causality tests strongly indicate that in Kenya and Nigeria, capital market liberalisation, measured by the market capitalisation and value traded indicators have had a positive long run relationship with capital formation in both countries. However, the ratification of the capital market liberalisation policy in Ivory Coast, South Africa and Zimbabwe has not had any significant positive long run relationships with capital formation. Thus, the empirical results provide very limited support to the view that capital market liberalisation is a very important determinant of capital formation in the developing countries within Sub-Sahara Africa as proposed by the financial liberalisation hypothesis. The study implies that liberalising the capital markets of countries in the Sub-Saharan African region is by no means sufficient to boost capital formation or investment levels. Furthermore, the findings strongly indicate that the effects of capital market liberalisation differ across countries, suggesting that the results from cross-sectional studies which consider all countries as identical entities should be interpreted with caution.

References

- Achy L (2003). Financial Liberalisation, Saving, Investment and Growth in MENA Countries. *Middle East Econ.* 6: 67-94
- Beck T, Levine R (2004). Stock Markets, Banks and Growth: Panel Evidence. *Journal of Banking and Finance.* 28: 423-442
- Bekaert G, Harvey CR (2000). Foreign Speculators and Emerging Equity Markets. *J. Financ.* 55(2): 565-614.
- Bekaert G, Harvey CR, Lundblad C (2003). Equity Market Liberalisation in Emerging Markets. *The J. Financ. Res.* 26(3): 275-299.
- Bencivenga VR, Smith BD, Starr RM (1995). Transaction Costs, Technological Choice and Endogenous Growth. *J. Econ. Theory.* 67(1): 153-177.
- Bender KA, Theodossiou I (1999). International Comparisons of the Real Wage-Employment Relationship. *J. Post-Keynesian Econ.* 21(4): 621-637.
- Devereux MB, Smith GW (1994). International Risk Sharing and Economic Growth. *Intl. Econ. Rev.* 35 (4): 535-550.
- Edison HJ, Klein M, Ricci L, Slok T (2002). Capital Account Liberalisation and Economic Performance: Survey and Synthesis. IMF Working Paper. No. 02/120.
- Fuchs-Schundeln N, Funke N (2003). Stock Market Liberalisations: Financial and Macroeconomic Implications. *Rev. World. Econ.* 139(4): 730-761.
- Fowowe B (2008). Financial Liberalisation Policies and Economic Growth: Panel Data Evidence from Sub-Sahara Africa. *Afr. Develop. Rev.* 20(3): 549-574.
- Ghosh J (2005). The Economic and Social Effects of Financial Liberalisation: A Primer for Developing Countries. DESA Working Paper. No. 4.
- Henry PB (2000). Do Stock Market Liberalisations Cause Investment Booms? *J. Financ. Econ.* 58(1): 301-334.
- Khumalo SA, Kapingura FM (2014). Impact of Capital Account Liberalisation on Economic Growth in Africa: A Case Study of South Africa. *Mediterranean J. Soc. Sci.* 5(20): 2753-2763.
- Kinuthia IK, Etyang MN (2014). Stock Market Liberalisation, Stock Market Performance and Economic Growth in Kenya. *Intl. J. Econ. Financ.* 6(4): 196-209.
- Kraay A (1998). In Search of the Macroeconomic Effects of Capital Market Liberalisation. The World Bank, Washington DC.
- Levine R (1991). Stock Markets, Growth and Tax Policy. *J. Financ.* 46 (4): 1445-1465.
- Levine R, Zervos S (1998). Capital Control Liberalisation and Stock Market Development. *World Develop.* 26(7): 1169-1183.
- Menyah K, Nazlioglu S, Wolde-Rufael Y (2014). Financial Development, Trade openness and Economic Growth in African countries: New Insights from a Panel Causality Approach. *Econ. Modelling.* 37: 386-394.
- Misati RN, Nyamongo EM (2012). Financial Liberalisation, Financial Fragility and Economic Growth in Sub-Saharan Africa. *J. Financ. Stability.* 8: 150-160.
- Naceur SB, Ghazouani S, Omran M (2008). Does Stock Market Liberalisation Spur Financial and Economic Development in the MENA Region? *J. Comparative. Econ.* 36(4): 673-693.
- Obstfeld M (1994). Risk-Taking, Global Diversification and Growth. *The American Econ. Rev.* 84(5): 1310-1329.
- Obstfeld M (1998). The Global Capital Market: Benefactor or Menace? *J. Econ. Perspect.* 12(4): 9-30.
- Shaw ES (1973). Financial Deepening in Economic Development. New York: Oxford University Press.
- Stiglitz JE (2000). Capital Market Liberalisation, Economic Growth, and Instability. *World Develop.* 28 (6): 1075-1086