

THE IMPACT OF CAPITAL MARKETS ON THE ECONOMIC GROWTH IN SOUTH AFRICA

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Abstract

Capital markets are institutions that actively play a role in the development of an economy. This study investigates the impact of capital markets on economic growth in South Africa from 1971-2013. The results indicated that there is a positive relationship between economic growth and capital markets in South Africa. Furthermore, the country should focus on factors that contribute to the development of capital markets, such as the development of financial institutions. The study contributes to the existing body of empirical literature with regards to economic growth and capital markets, especially with reference to stock markets as South Africa has one of the largest stock markets (JSE) in the world.

Key Words: Capital Markets, Economic Growth and Exchange rates, Cointegration approach, South Africa

JEL Classification: B22, C01, C12, C22, D53, F21, F43

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1. Introduction

Capital markets have over the years proven to be of high regard in South Africa. South Africa's unique level of growth forms part of the fastest developing countries in Africa. The country's gross domestic product (GDP) is largely accounted for by its stock market, which far exceeds that of other developing economies such as Mexico and Indonesia which also have economies that are growing quite well (Hassan, 2013). Stock markets have a substantial impact on growth and the case for South Africa is no different, from where it all began to date. According to De Kiewiet (1941) the greatest discovery and opportunity for development ever discovered was that of gold mines in South Africa. In the year 1887 large deposits of gold were unearthed in the Witwatersrand area. The discovery created a gap in the growing economy, making a potential opportunity a struggle with the lack of funds being the root cause of the challenges faced in those days. With that in mind, the establishment of the Johannesburg Stock Exchange (JSE) was the best sought after decision to try and curb the situation, which created a better platform for trade (Hassan, 2013).

Kock (2009) discovered that the JSE forms part of the largest stock markets in the world. The JSE ranks as the sixth largest as compared to its counterparts in the developing countries globally which have South Korea as the largest, followed by Taiwan, India, Brazil and China being the fifth in terms of their stock markets. A highlight in the development of the South African stock markets took place when it

had a surplus of 900 billion US dollars in the form of market capitalization, with above 400 firms listed in the stock market making it a developing country with the largest stock market in Africa (Kock, 2009). The mining sector contributed immensely to the establishment of the stock market which further encouraged growth and helped with the improvement of the financial sector in South Africa. South Africa relied mostly on the extraction of the precious metals for the enrichment of its economy as opposed to the traditional system of generating growth and development through agricultural processes. The mining sector also had a short-coming, because according to Trevor et al., (1999) it incurred a lot of expenses that required capital to be raised in order to maintain the blooming sector, in particular the deep-level gold mines. The growing market developed a path for a proper capital market to be put in place.

Alile (1984) defines a stock market as an institution that actively plays a role in the development of an economy, an emerging economy and developed economy. The main function of the market is to link surplus funds to its counter deficit sector. The link is a form of resource mobilization and includes activities such as promoting reforms to modernize the financial sectors, and most importantly developing a channel for savings for various uses in the economy to enhance efficiency and growth in the economy (Alile, 1984). Capital markets allow emerging firms to be able to make loans that allow a contribution to productivity in the form of capital investment and growth which encourages job creation and growth in the economy. Alile (1997) and

Ekundayo (2002) suggest that in order for a nation to be able to gain sustainable economic growth and development; it would require large volumes of investments both locally and internationally. The capital market makes the process possible in the financial and or monetary sector. Capital markets are drivers of any economy as argued by Osaze (2000) given that it is vital for long-term growth capital formation. They are also an important channel for savings and directing savings to profitable self-liquidating investment.

Adebisi (2005) is of the view that in everyday life, money is a vital tool used to satisfy a need or want in society whether it is worked for or sourced as a loan. The use of money promotes the growth of capital and the growth in turn boosts the economy. For the existence of capital markets, money is raised in various ways, which could be under the intervention of government as a regulator, the proper administration of service by various financial institutions or market operators. In every economy, the rate of growth is largely determined by its maturity in the financial market, particularly the capital market. Dominant financial markets enable nations from across the world to grow in terms of the economy and development by assisting them to generate much needed financial resources and skills needed to achieve their economic goals. Listed equity stock or markets in third world countries suffered gravely in the early 1980s due to classical defects of bank dominated economies. The economies were short of capital equity, absence of liquidity, minimal foreign direct investors and a low confidence by investors with regards to the stock markets.

Initiatives that are aimed at encouraging growth and investment in the sub-Saharan countries are growing in demand day by day. On the contrary, a factor that might delay the growth in these areas would be the lack of monitoring in terms of the capital markets in these developing areas. The market systems at hand would include, among others, banking systems, insurance and security schemes, pension fund schemes, and finance from Small Medium-sized Enterprises. A proper tool put in place to govern these financial resources would then contribute to a proper management system for current financial resources and those that are to be employed in future (Applegarth, 2004). With the limited literature on the empirical work that has been conducted in South Africa, it supports the notion that there is little effort put towards ensuring a proper working system is in place to keep track of the capital markets.

Various authors have investigated the relationship between capital market development and economic growth in different countries such as Nieuwerburgh et al., (2006) in Belgium, Hondroyannis et al., (2005) in Greece, Liu and Hsu (2006) in Taiwan, Korea and Japan. Naceur, and Ghazouani and Omran (2007) also conducted a study

on the influence of stock markets and bank system development on economic growth using a sample of 11 Arab countries. Closer to South Africa, the relationship was investigated by Bolbol et al., (2005) in Egypt and Adaramola and Kolapo (2012) in Nigeria. Enisan and Olufisayo (2008) also conducted a study on the stock market development and economic growth on seven sub-Sahara countries, however, a focus on the case of South Africa is what this study seeks to establish. The research findings of this study will contribute to the decision made by policy-makers with a desire to grow the capital market sector and to develop the economy. The study itself is significant with regards to the capital market scope, as it will contribute to the growing body of knowledge around capital markets in developing countries such as South Africa. Information gathered in this study will also determine the role capital markets have on economic growth since the literature in this area of research is still minimal in the South African context. The subsequent sections will focus on the literature review followed by the methodology, the data analysis and the interpretation of the results and the last section is the conclusion.

2. Literature Review

In the capital market, there are risks associated with transactions made. The market offers financial instruments that enable economic stakeholders to exchange, pool and price risk. As the asset values increase, such as in the form of capital acquisition and stocks, financial savings are enhanced. Al-Faki (2006) defines capital markets as a network of specialised financial institutions, series of mechanism, process and infrastructure that, in various ways facilitate the bringing together of suppliers and users of medium to long term capital for investment in economic development project. According to Harrod-Domar's growth model, savings and investment are a necessity for growth to take place. The growth of a country would depend on the level of Savings (S) and the productivity of capital investment which is also known as the capital-output ratio. Aghion and Howitt (1998) emphasised that the principle is that a low capital output ratio automatically suggests that the output will be high with only a low capital input. On the contrary, a substantially high capital output ratio would produce a low level of output using a high level of capital input.

Over the years, developing countries have been receiving portfolio equity flows. In time, a change is expected due to countries' trade openness, with the main focus being on the domestic state rules that govern capital and income (Williamson, 1993). In light of Goldstein et al., (1991) the appropriate dividends and capital may be the most crucial factor in encouraging significant foreign equity flows. According to classical literature in economics, the

high risk assets are priced in such a way that they yield a higher return. Furthermore, as the international financial system adopts a diverse nature, in terms of integration and portfolios, asset prices are prone to change with the aim of restoring disequilibrium (Taylor and Sarno, 1997). This therefore, explains the exchange rate parity condition. Bekaert (1995) states that major industrial and developing countries show a large and high increase in the interest rate differentials, which suggests that there is also an increase in the capital mobility in these developing countries. Rates of return are often found to be higher in developing countries and countries that have a weak financial system as compared to many other markets in other countries that have an industrialised economy, the rate of return generally has a risk of volatility occurring associated to it. In a small economy, the output is anticipated to be higher with limited capital stock, given that there are diminishing returns on capital.

Another component of significance in the capital markets, as looked into by Bekaert (1995) is the rates of credit granted to countries and the secondary-market prices of sovereign debt, which often influence the investor confidence in that particular country. The valuing of the exchange rate is also a contributing factor to capital flight. The more overvalued an exchange rate is, the more likely it is for the currency to depreciate in future. The volatility of the exchange rate then propels residents to house their assets abroad to avoid any capital losses that might occur due to the volatility of the currency. Harvey (1995) and De Santis (1993) stated that the growth and world wide scale of developing countries has improved positively over the years. In the year 1994, developing market's net capital worth was estimated at about \$1.9 trillion which showed an increase from the \$0.2 trillion net worth that was recorded in the year 1985. At the time, over \$39 billion was transferred into developing markets in the year 1994, as compared to the \$0.1 billion that was transferred in 1985. The growth in these markets raised eyebrows and caused focus on them by various scholars, researchers, practitioners and policy makers. A significant number of studies focus on assessing the privileges of holding an internationally broadened portfolio. In addition, more of those countries are trying to review their policies to try and encourage capital market development in their countries.

In the case of South Africa, during the mid-1990s, the relaxation of capital accounts and broader economic reform encouraged improvement in the balance of payments. Shortly after democracy was introduced in 1994, the African government introduced policies that were intended to regulate the foreign exchange market (FOREX) and international relations. The foreign debt crisis that was accumulated from historic debt of the previous government was a propelling factor to the resolution to start with the exchange controls (Leape, 1991). In

late 1994, South Africa was already paving the way for re-entry into international bond markets after the sanctions. As a way to properly re-introduce the country into the market, sovereign credit ratings were established. The South African government has developed a system that keeps record of loans that are made abroad and attain a longer maturity profile for foreign currency debt and providing a scale for other South African borrowers to access international capital. The scale is perceived as a primary goal for external loans, given that a well-developed domestic bond market is an essential source of public sector financing.

The concept that financial development enhances economic growth was first made known by Schumpeter in the year 1911 (Schumpeter, 1912). The necessity was also emphasised by authors such as Goldsmith (1969), Mckinnon (1973) and Shaw (1973) among others. There are views that commissioned the relationship between financial development and economic growth. Demand following argument is of the view that financial development is perceived as a stimulant for economic development which does not take into consideration the demand of financial services in a growing economy. The development in the real sector of the economy helps to smooth the growth in the financial sector. In contrast, the feedback hypothesis suggests that a bidirectional relationship between financial development and economic growth largely depends on the various stages of economic development.

A well developed and effective financial sector grows domestic savings and mobilises capital for productive projects that encourage economic growth. In the cases where there are inefficiencies in the financial sector, productive projects are often unexploited for developmental purposes. Capital markets act as a link between monetary and real sector and therefore smoothen the process of growth in the real sector and economic development. Although stock might impact growth in a positive manner, there are however factors that are key role players such as the size, liquidity and efficiency of the market as well as the quality of the environment. The quality of the environment is regarded as the social and economic conditions of the countries involved. In countries where there is high political instability and perceived risks, stock markets would be constrained (Agbetsiafa, 2003). Al-Awad and Nasri Harb (2005) further state that capital markets also attract foreign portfolio investors who are critical in supplementing the domestic savings levels. It facilitates inflows of foreign financial resources into the domestic economy. Recent empirical research linking capital market development and economic growth suggests that capital market enhances economic growth and development. Countries with well-developed capital markets experience higher economic growth than countries without. Evidence indicates that, while most capital markets in African

countries are relatively underdeveloped, those countries which introduced reforms that are geared towards development of capital markets have been able to grow at relatively higher and sustainable rates.

In a growing economy, the demand driven hypothesis states that as the income levels increase, the need for new financial services increase as well. Garcia and Liu (1999) found that in a sample of Latin and Asian countries, income levels have a positive effect on stock market development. Inflation has over the years, upon various observations of study, been a tool used to try and maintain macroeconomic stability (Nacuer et al., 2007 and Garcia and Liu, 1999). Stock market development has also shown traces of effects contributed to by macroeconomic stability, although there remains no trace of the form of effects. Researchers seem to come to a dilemma when a decision has to be made with regards to the relationship between financial sector development and economic growth. Berthelemy and Varoudakis (1996) and Christopoulos and Tsionas (2004) state that banking sector development has a positive impact on economic growth, whereas Singh (1997) has a different view and suggests that the banking sector might not be beneficial for economic growth. Another uncertainty is the relationship between banking sector development and the stock market. Although the view might not be clear, the banking sector is crucial for any economy and the development of its stock market. This is because it creates room for investors with liquidity through credit allowances and also spirals out a better channel for savings.

A study conducted by Minier (2003) looked into the influence of the stock market dimension on economic development by employing three techniques. It was discovered that the positive influence of stock market development on economic growth was only viable for developed stock markets in terms of their turnover, whereas in the cases of underdeveloped stock markets the influence is negative. Another study on the impact of financial structure on the economy during the period 1980-1995 by Ergungor (2006) concluded that in countries with rigid judicial systems, the development of the bank-systems generates the strong impact on economic growth. On the contrary, countries with more elastic judicial systems have a greater influence because of the development of their capital markets. Various authors have investigated the relationship between capital market development and economic growth in different countries. The long run relationship between stock market development (measured by market capitalization and number of listed shares) and economic growth was studied by Nieuwerburgh et al. (2006) in Belgium. In their study, they adopted the Granger causality tests and highlighted that stock market development had a causal impact on economic growth in Belgium, with the focus period 1873-1935 not excluding the actual

analysis period (1800-2000) with disparity taking place due to institutional changes that have an impact on the stock exchange.

In Greece, from the year 1986 – 1999, Hondroyiannis et al. (2005) discovered that the link between capital market development and economic growth is bidirectional. There are several other factors that are key role players with regards to the impact of capital markets on economic growth in countries. Liu and Hsu (2006) focused on the effects of different components of financial systems on economic growth in Taiwan, Korea and Japan. They looked into the impact that a positive stock market development system (measured by market capitalization as percentage of GDP, turnover as percentage in GDP and stock return) has on economic growth. A study on the effect of financial markets (measured by the ratio of market capitalization on GDP and the turnover ratio) on aggregate factor productivity and growth (the per capita GDP growth rate) in Egypt (1974-2002) was conducted by Bolbol et al. (2005). In their study, they they found that a well-developed capital market had a positive impact on factor productivity and growth.

Empirical studies that investigate the correlation between financial development and economic growth also show that in terms of the direction of causality, as a general trend, financial development causes growth. The causal relation is more significant in developing countries which can be explained by two channels; the growth of productivity and fast accumulation (Calderon and Liu, 2002). Rajan and Zingales (1998) stand in agreement with Calderon and Liu, (2002). They suggest that financial development is a forecast for economic growth; given that value of potential economic growth opportunities are as a result of the present value of financial development. A study on five developed countries was also done by Arestis et al. (2001). They adopted the autoregressive vector for an empirical analysis and discovered that capital markets do in fact have an effect on economic growth, however financial systems in terms of the banking sector has a greater impact on economic growth. Literature suggests that a more developed country has the potential to have a better financial market which entails a well off capital market.

3. Methodology

Data sources, description and methods of analysis

The study employed the annual time series data from 1971 to 2013. The data was collected in the following manor; market capitalization and value of transactions were obtained from the Quantec data warehouse, exchange rate and gross domestic product was collected from the South African Reserve Bank (SARB). Market capitalization, value of transactions and gross domestic product are collected in millions while exchange rate is in percentages. Economic

growth is proxied by Gross Domestic Production while Capital market only caters for Value of Transactions and Market Capitalization. The standard equation is expressed as follows:

$$GDP = f(MCAP, VLT, EXCHR) \quad (1)$$

Where; GDP = Gross Domestic Product (proxy for economic growth) MCAP = Market Capitalization, VLT = Total value for Transactions and EXCHR = Exchange rate

$$\text{Log}(GDP_t) = \beta_0 + \beta_1 \text{Log}(MCAP_t) + \beta_2 \text{Log}(VLT_t) + \beta_3 \text{Log}(EXCHR_t) + \mu_t \quad (3)$$

3.1 Unit root

As a norm, before an econometric model can be designed, there has to be a test of stationarity to check for the order of integration. In a broader term, Gujrati (2003) states that a data series is stationary only if the mean and the variance are constant over time. Moreover, the rate of the covariance between two time frames under study relies on the span in which the covariance is calculated. A customised version of the Augmented Dickey-Fuller (ADF) was developed by Dickey and Fuller (1981). Phillips Perron slightly differs from ADF in terms of the heteroskedasticity in errors and the serial correlation. It uses a different

$$\Delta Y_t = b_0 + \beta Y_{t-1} + \mu_1 \Delta \beta Y_{t-1} + \mu_2 \Delta \beta Y_{t-2} + \mu_3 \Delta \beta Y_{t-3} \dots \mu_p \Delta \beta Y_{t-p} + \varepsilon_t \quad (4)$$

3.2 Johansen cointegration test

It is imperative that one makes sure all series in the data sets contain the same order of integration $I(1)$ before proceeding to a cointegration test. Unit root tests have limited ability to distinguish the difference between a pure unit root and a close alternative; moreover the results are often based on subjective rather than theoretical and empirical facts. The Johansen test builds cointegrated variables directly on maximum likelihood estimation instead of relying on OLS estimation. The Johansen test adopts two different likelihood tests namely the trace test and the maximum Eigen value test. A primary benefit of the Johansen test is that it can identify or estimate multiple cointegration relationships if the proposed data set contains two or more time series as compared to its counterparts being Engle-Granger and the Phillips-Ouliaris methods. Furthermore, the Johansen test is a vector cointegration test method and it adopts the following model;

$$y_t = \mu + \beta_1 y_{t-1} + \beta_2 y_{t-2} + \dots + \beta_k y_{t-k} + \mu_t \quad (5)$$

3.3 Granger causality test

According to Brooks (2002) Granger causality is an econometrics tool based on the standard F-test

A detailed form of equation (1) will be as follows:

$$GDP_t = \beta_0 + \beta_1 MCAP_t + \beta_2 VLT_t + \beta_3 EXCHR_t + \mu_t \quad (2)$$

In the equation, β_0 represents the intercept or constant of the relationship in the model where β_1 , β_2 and β_3 are coefficients of each of the independent variables and the μ is the stochastic or error term. The linear representation of the equation expressed as logarithms will be in this manner:

approach to approximate the ARMA structure of errors in the test regression; it ignores any serial correlation as compared to the ADF that uses a parametric auto regression.

The ADF has a minor limitation where the test itself has a lower power; the KPSS test on the other hand assumes that y_t is stationary at the null. In the case where the results are contradictory using both the ADF and the KPSS for instance, the KPSS test is opted for instead, given that presumptions are that the KPSS test caters for the drawbacks produced by the ADF test Kwiatkowski et al. (1992). The ADF test adopts the following model;

framework to determine whether one time series is useful to predict the future of another series. The Granger causality can then be said to only represent a correlation between the present value of one variable and the previous value of others. Furthermore, Brooks (2002) argues that this does not necessarily suggest that the activity of variable is a result of another. The Granger causality adopts the following model;

$$\Delta y_t = \sum_{j=1}^n b_j \Delta x_{t-j} + \sum_{j=1}^n c_j \Delta y_{t-j} + \varphi e_{t-1} + w_t \quad (6)$$

$$\Delta x_t = \sum_{j=1}^n b_j^* \Delta y_{t-j} + \sum_{j=1}^n c_j^* \Delta x_{t-j} + \varphi e_{t-1}^* + w_t^* \quad (7)$$

3.4 General Impulse Response Function

General Impulse Response Function (GIRF) is a tool that is employed to evaluate the persistence and relative effects of several macroeconomic shocks. Furthermore, the empirical observations made are also used for the development of various theoretical models. A vector autoregressive (VAR) model is used to characterise the effects of the macroeconomics.

3.5 Vector Error Correction Model

Error Correction is a part of the model that looks at how fast the past deviations from equilibrium are corrected. Error Correction Models (ECMs) are a category of multiple time series models that directly estimate the speed at which a dependent variable - Y - returns to equilibrium after a change in an independent variable - X. ECMs are useful for

estimating both short term and long term effects of one time series on another. ECMs are useful models when dealing with integrated data, but can also be used with stationary data. In order to explain the complex interrelationship between stationary variables in empirical observations, a VAR model is used as a framework. The VECM test adopts the following model;

$$\Delta Y_t = a_1 + p_1 e_1 + \sum_{i=0}^n \beta_i \Delta Y_{t-i} + \sum_{i=0}^n \sigma_i \Delta X_{t-i} + \sum_{i=0}^n \gamma_i Z_{t-i} \tag{8}$$

4. Data analysis and interpretation

In this section, the study focuses on the analysis of data and the interpretation of the findings. A test of stationarity is conducted adopting the ADF and KPSS

unit root tests. To check for the causality, the Engle Granger will be employed and the VECM test follows shortly after that.

Table 1. ADF Unit root test for variables at levels and 1st difference

Variables	ADF test statistics at levels	Remarks	ADF tests statistics at 1 st difference	Remarks
LMCAP	-2.471526	Nonstationary	-6.470559	Stationary
LVLTL	-1.582098	Nonstationary	-5.631937	Stationary
LEXCHR	-6.228681	Stationary	-7.536682	Stationary
LGDP	0.128823	Nonstationary	-5.268702	Stationary

All the variables are non-stationary, with the exception of exchange rate which is stationary at levels. The test shows that all the variables are stationary after the 1st difference. The results

furthermore suggest that the variables are cointegrated in the order one (1). Therefore, the null hypothesis of nonstationary is rejected.

Table 2. KPSS unit root test for variables at levels and 1st difference

Variables	KPSS test statistics at levels	Remarks	KPSS tests statistics at 1 st difference	Remarks
LMCAP	0.118885	Stationary	0.115847	Stationary
LVLTL	0.112445	Stationary	0.133552	Stationary
LEXCHR	0.052887	Stationary	0.325609	Nonstationary
LGDP	0.218692	Nonstationary	0.098993	Stationary

The variables are stationary at levels, with the exception of LDGP which is nonstationary. Moreover, all the variables are stationary at the first difference, except the exchange rate which is nonstationary at the first difference. The results furthermore, suggest that the variable is cointegrated in the order one (1).The ADF and PP test confirmed the proposed output that gross domestic product,

market capitalization and value of transactions were non stationary at levels. In contrast, the KPSS showed a different view. The test revealed that only gross domestic product was stationary at levels leaving all other variables non stationary. Ultimately, all the variables were stationary at their first difference (1st) for both the unit root tests.

Table 3. Cointegration test results: Trace test

Hypothesized No. of CE(s)	Eigen value	Trace Statistic	5 % Critical value	Probability**
None*	0.579794	79.79452	47.85613	0.0000
At most 1*	0.516822	45.98113	29.79707	0.0003
At most 2*	0.314574	17.61371	15.49471	0.0236
At most 3	0.071253	2.882819	3.841466	0.0895

Trace test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 3 shows the number of cointegrating equations. The results show that the trace test indicates that there are 3 cointegrating vectors at

0.05% level. The results suggest that there is a long run relationship between the 4 series in the form of a linear combination.

Table 4. Cointegration test results: Maximum Eigen

Hypothesized No. of CE(s)	Eigen value	Max- Eigen statistic	5% Critical value	Probability**
None*	0.579794	33.81339	27.58434	0.0069
At most 1*	0.516822	28.36742	21.13162	0.0040
At most 2*	0.314574	14.73089	14.26460	0.0422
At most 3	0.071253	2.882819	3.841466	0.0895

Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

Table 4 also produces the number of cointegrating equations. The maximum Eigen test shows that there are 3 cointegrating vectors at 0.05% level. The results are in agreement with the trace test that there are three cointegrating vectors and that there is a long run relationship between the 4 series.

The statement is validated by an argument based on a view given by Barnerjee; Dolado; Galibraith and Hnery (1993) that even if there were variations in the results produced by the trace and maximum Eigen tests, the maximum Eigen test results are more reliable.

Table 5. Vector Error Correction Model

Error Correction:	D(LOG_GDP)	D(LOG_EXCHR)	D(LOG_VLT)	D(LOG_MCAP)
CointEq1	-0.012465	-0.350802	-0.029515	-0.016705
D(LOG_GDP(-1))	0.171990	-43.03842	-1.799309	-1.092170
D(LOG_GDP(-2))	-0.141722	63.63944	-0.283642	-1.296091
D(LOG_EXCHR(-1))	0.000615	-0.461804	-0.008155	-0.011137
D(LOG_EXCHR(-2))	0.000219	-0.331780	-0.017616	-0.022200
D(LOG_VLT(-1))	-0.010612	-6.480851	0.206411	0.218782
D(LOG_VLT(-2))	0.032722	13.70430	0.179293	0.247980
D(LOG_MCAP(-1))	0.019719	12.82838	-0.053090	-0.191756
D(LOG_MCAP(-2))	-0.002090	-12.52819	-0.081433	-0.198260
C	0.117734	-3.345204	0.383046	0.549685

The projected coefficient of VECM of -0.124 is significant with theory that suggests that the sign of a VECM coefficient in an output should be negative. The results further indicate that any short term changes in the relationship between the dependent and independent variables will be easily corrected to a stable long run relationship among the variables. Furthermore, given that the VECM test indicates the cointegration relationship of the variables, the output is in agreement with both the trace and maximum eigenvalue tests. The tests suggested that the variables are cointegrated and have at most three (3) cointegrating vectors, which also show that the model is correctly specified. This supports the findings that capital markets do have an impact on economic growth in South Africa. In definite terms, the projected coefficient of -0.124 indicates that about

1.2% of the disequilibrium of the past year comes back to the long run equilibrium in the following year.

Although it is relatively low, it is in agreement with Agbetiafa (2003) who stated that even if capital markets might have an impact on growth, factors such as political instability and low efficiency levels in the financial market, which is found in South Africa, reduces the ability to increase and attain these levels of growth. In addition, the results show a long term causal relationship between the exogenous and endogenous variables. About 50% of the growth is explained by capital markets in South Africa, which is given by a fairly positive R^2 that stands at -0.50. The other 50% can be accounted for by the variables that were not part of the model (omitted).

Table 6. Granger causality test

Null hypothesis	F statistic	P-value	Decision
LOG_MCAP does not Granger cause LOG_GDP	1.42832	0.2521	Accept the null hypothesis.
LOG_GDP does not Granger cause LOG_MCAP	5.94226	0.0023	Reject the null hypothesis
LOG_EXCHR does not Granger cause LOG_GDP	0.11805	0.9489	Accept the null hypothesis
LOG_GDP does not Granger cause LOG_EXCHR	0.89992	0.4516	Accept the null hypothesis
LOG_VLT does not Granger cause LOG_GDP	1.25348	0.3063	Accept the null hypothesis
LOG_GDP does not Granger cause LOG_VLT	4.24734	0.0121	Reject the null hypothesis
LOG_EXCHR does not Granger cause LOG_MCAP	5.93907	0.0023	Reject the null hypothesis
LOG_MCAP does not Granger cause LOG_EXCHR	1.89172	0.1502	Accept the null hypothesis
LOG_VLT does not Granger cause LOG_MCAP	0.93604	0.4343	Accept the null hypothesis
LOG_MCAP does not Granger cause LOG_VLT	1.14654	0.35448	Accept the null hypothesis
LOG_VLT does not Granger cause LOG_EXCHR	1.57206	0.21147	Accept the null hypothesis
LOG_EXCHR does not Granger cause LOG_VLT	5.08899	0.0053	Reject the null hypothesis

Decision rule: reject the null hypothesis if P-value is less than 5% significance level or; Reject H_0 if $P\text{-value} < 0.05$

The causality test shows a unidirectional causation between LGDP and LMCAP. It further indicates that there is no causality between LEXCHR and LGDP. However, it also shows that LGDP granger causes LVLT, although LVLT does not granger cause LGDP, which suggests a unidirectional causation. The same applies for LEXCHR and LMCAP, where LEXCHR granger causes LMCAP and LMCAP does not granger cause LEXCHR. In contrast, there is no causality between LVLT and LMCAP, whereas LVLT granger causes LEXCHR and LVLT fails to granger cause LEXCHR. The results clearly suggest that there is a positive relation between capital markets (in the form of LMCAP and LVLT) and economic growth in South Africa. Moreover, the results are in agreement with the previous cointegration results that showed three cointegrating vectors in the model.

5. Conclusion

Theoretical literature highlighted that there are various factors that contribute to the long term economic growth of any country, especially developing countries. It is suggested that countries such as South Africa should focus on the key economic objectives such that they improve their low economic conditions. The literature further showed that an added advantage is exploiting areas of abundance as suggested in the introduction. Authors such as Schumpeter (1911) highlighted that financial sector development is essential for any economy to attain sustainable growth. The author noted that the more developed a financial sector is, the more capable it is to absorb and utilize capital markets in the long run. Moreover, the author pointed out that not only is financial development essential and good for economic growth, it in actual fact causes economic growth. Although Schumpeter (1911) emphasized the significance of financial sector development, which includes the banking sector

(Berthelemy and Varoudakis, 1996) other authors brought forward factors such as macroeconomic stability, income levels (Gracia and Liu, (1999), (Nacuer et al., 2007) that also contribute to sustainable economic growth.

The Johansen cointegration test was adopted in the study and it shows 3 cointegrating vectors. The VECM test was conducted right after the cointegration test, which lead to a Granger causality test to detect the direction of the causality. Although South Africa forms part of the fastest growing countries in Africa and the world, empirical review shows that the lack of facilities such stability in the macro economy, developed financial systems and political stability, to mention a few, hinders any progress to grow the economy. In conclusion capital markets have a long term positive impact on developed countries than they do on developing countries.

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