The impact of financial sector development on economic growth: analysis of the financial development gap between Cameroon and South Africa

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Abstract:

African countries are developing better economic and monetary reforms so as to gain the status of an emergent country over a certain period of time, Cameroon is not left behind, she wants to be emergent by 2035. This study seeks to verify the short-run and long-run impact of financial sector development on economic growth and also to verify the gap of financial development that separates Cameroon and an emergent country like South Africa. The vector error correction model was used, in Cameroon a long-run relationship between economic growth and financial development was noticed while for South Africa there is a short-run relationship between bank deposits and economic growth, there is also a long-run relationship between economic growth and financial development. The South African economy moves towards its long-run equilibrium faster after economic shocks thanks to its good financial developed economy. We also notice that there is a gap of 0.26, this means that for the economy of Cameroon to be emergent, the speed of long-run adjustment should increase by 0.26.

Keywords: Economic growth, financial development, vector error correction model, Cameoon, South Africa

Introduction

In the last few years, there have been revivals of interest in the determinants of long-term economic growth in Africa. New endogenous theories of economic growth have stimulated research in which they seek to identify the factors that could stimulate long-term growth rates in countries across Africa. This would result in a reduction of their dependence on aid and stimulate utilization of their own resources capacity in order to improve their economic situation, consequently leading to a reduction in poverty. Many studies have shown that the best way for African countries to achieve 4 to 5% economic growth per year is to enhance the development of their financial sectors [1](World Bank, 1989).

Having a well-functioning financial system in place that directs funds to their most productive uses is a crucial prerequisite for economic development. The financial system consists of all financial intermediaries and financial markets and their relations with respect to the flow of funds to and from households, governments, business firms, and foreigners, as well as the financial infrastructure. The main task of the financial system is to channel funds from sectors that have a surplus to sectors that have a shortage of funds. In doing so, the financial sector performs the task of reducing information and transaction costs, and facilitating the trading, diversification, and management of risk.

Investment is inherently risky owing to imperfect information and exogenous events. Theory demonstrates that portfolio diversification is the best means to minimize risk. Having pooled the savings of individuals, financial markets are able to diversify across a range of investments, thereby minimizing risk to return. Financial institutions enable entrepreneurs, investors and savers to diversify and reduce risk. Two types of risks can be involved, liquidity risk[2] and idiosyncratic risk.[3] Liquidity, according to Levine (1997), is the ease and speed with which agents can convert assets into purchasing power at agreed prices. Thus, a liquidity risk, according to the latter, arises due to the uncertainties associated with converting assets into a

[1]Throughout this study, the terms financial sector and financial system are used interchangeably as theyboth express the same ideas.

[2] The risk that an asset or a financial security will not be easily traded so as to take advantage currents gains that can accrue or so as to prevent a loss that can stem forth as a result of delays.

[3]An idiosyncratic risk is one that is unrelated to the overall market risk. In other words, it is a risk that isfirm-specific and can be diversified through holding a portfolio of stocks. It is also termed unsystematic risk.

medium of exchange. Information asymmetry and transaction costs may make it difficult to liquidate assets, hence intensifying the said risk.

It is now widely acknowledged that financial development plays a significant role in economic growth. According to Hamilton (1781)[4], banks are the happiest engines that have ever been invented for spurring economic growth. The relationship of the financial sector to economic growth globally has recently been the subject of considerable empirical and theoretical research. The few works that have been published on Africa, especially in Sub-Saharan Africa, have generally concluded that financial development should lead to economic growth. Flowing from these studies[5]is the recommendation that African countries need to expand and improve the efficiency of their financial sectors, through appropriate regulatory and policy reforms, in order to promote faster economic growth

The main question to be asked is the following: Is this positive impact of financial development on economy the result of a high growth of economy or the reverse? In other words, does financial development lead to economic growth? Or it is the other way round? Could economic growth result in higher demand for capital and financial services inducing financial development? If true financial development would be less important to promote growth since it merely follows where economic growth leads, this is the main idea of Robinson (1952) and prominent of his view.

Many researchers have verified the importance of financial development to economic growth, this paper seeks to contribute to literature by doing a comparative analysis of the impact of Cameroon financial sector development on economic growth, Cameroon is a country which strives for emergence by 2035 and South Africa which is an emergent country, this study would bring out the gap in financial sector development which has to be filled for Cameroon to be truly emergent by 2035. The rest of this paper is organised as follows; section1 would review the development of the Cameroonian and South African Financial systems, section 2 is concentrated on related literature and section 3 would deal with the data and methodology and section 4 would be based on presentation of results and discussion.

[4]The quotations from Hamilton is taken from Levine et al 2000

[5]Ghirmay (2004), Xu (2000), Khalifa (2001), Honohan (1993), Akinboade and Makina (2006), Allen and Ndikumana (2000), Levine et al (2000) etc.

2 Literature Review

2.1 Theoretical literature

Joseph Schumpeter's Theory on Economic Growth and Development

Schumpeter in 1911 was the one who brought out the fact the role of financial intermediation (banks) is at the centre of economic development (growth).

He made the first articulated statement by explaining how financial transactions take central stage in economic growth. He did not use the modern parlance of financial transactions but he used the bankers as an example. Instead of using the term economic growth, he used the term development.

Schumpeter (1911), for example, suggested that bankers, through their selection and funding of entrepreneurs, promote innovative activities and spur economic growth. According to Schumpeter the banker is an intermediary between those who strive for the realization of new combinations and owners of capital which is necessary to accomplish this aim. Thus, when a bank issues a loan, it authorizes the implementation of "the new combinations" in the name of the whole society. Banking activity is aimed at stimulating economic development.

However, it implies the absence of centralized power that would exert exclusive control over social and economic processes. At the same time it should be considered that according to Schumpeter bank loans are of a great importance just at the moment of creating "the new combinations" whereas in a steady state of the economy when firms have already had necessary means of production or are able to fill them up constantly due to the revenues from previous production, finance just plays an auxiliary role.

Schumpeter provides a provocative argument for the role of banks within the economy. According to Schumpeter, an economy has an endogenous locomotor which is innovation. Innovation is generally defined as "the new combinations of existing stock of the factors of production". Those who realize and create these new combinations, and thus promote economic growth, are defined as entrepreneurs.

Schumpeter regards credit creation by banks as the main source of finance, once the stationary economy of the circular flow is left behind and the Banks are the co-conductors

of economic growth and development, as they move capital from idle hands in to the hands of the innovator/entrepreneur.

They promote innovation by "with drawing the means of production from old combinations and allocating it to new combinations."In summary, banks use their intermediary role to help stimulate the economy.

2.2 Empiric literature

The original view by Schumpeter, in 1934, Gurley and Shaw, 1955; and Goldsmith, in 1969 holds that a financial system that is well-developed stimulates growth by channelling savings to the most productive investment projects. Conversely, financial repression results in a poorly functioning financial system that in turn depresses growth.[6] Empirically, there have been various approaches to explore the relationship between finance and growth. Past researches were based on cross-sectional data using standard OLS estimation methods, and this approach confirmed that there was a positive correlation between financial development and economic growth. While their findings suggest that finance helps to predict long-term growth, a number of authors (Chuah and Thai, 2004; Khan and Senhadji, 2003; and Barro, 1991) argue that conclusions based on cross-sectional analysis are unreliable and have several econometric problems.

In the light of the on-going debate on the role of financial development in economic growth Nahla Samargandi, Jan Fidrmuc and Sugata Ghoshek (2014) carried out a study that sought to contribute to the debate on the effects of financial development from an empirical perspective.[7]

First, they adopt the recently developed dynamic panel heterogeneity analysis based on the technique introduced by Pesaran et al. (1999). Specifically, they use the autoregressive distributed lag (ARDL) model, where the estimations were carried out by three different estimators: the pooled mean group (PMG), mean group (MG), and the dynamic fixed effect (DFE) estimators in order to examine both the long- and short-term effects of financial intermediation on growth. The use of these techniques allows them to take into account the country-specific heterogeneity issue.

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[6]This can happen as a result of excessive government interference in the financial system with measures such as interest rate ceilings, higher bank reserve requirements, and direct credit programs to preferential sectors.

[7] Nahla.S, Jan .F, Sugata G. is the relationship between financial development and economic growth monotonic? Evidence from a sample of middle income countries.2014, Pg 3-8

However, from in 1980s onwards, developing countries have improved the efficiency of their financial markets. Nonetheless, previous studies argue that the relationship between financial development and economic growth in developing countries is inconclusive (Kar et al, 2011). Therefore, this paper considers a panel of middle-income countries. Third, given that financial development can be captured by several possible indicators, we use principal component analysis (PCA) to build an indicator of financial development that is as broad as possible and captures various dimensions of the financial sector.

To come to a general empirical conclusion, we can say that studies using cross-sectional regressions found out that financial developments positively affect economic growth through productivity of capital and accumulation of saving, though they however failed in explaining the real direction of causality between financial development and economic growth. It is also important to say that studies using this particular model are too old. Studies that used time series-techniques are those that have mostly focused on studying the causality between financial development and economic growth and they are more recent than studies using cross-sectional regression. However, studies using the time-series techniques arrived at a less uniform conclusion. In general, the view that in developing countries, finance causes growth in the earlier stages of economic development, and that in developed countries, growth causes financial development, prevailed. A significant number of studies, however, detected a bi-directional causality. It becomes evident that the causal relationship between financial development and economic growth depend on two main elements, indicators of financial development used and the level of development of the financial sector.

3. Data and Model specification

3.1 Data

Annual time-series data covering the period from 1980-2010 for both countries will be used. The main sources of data for most of the variables are from the World Bank development index (WDI, 2013).

3.2 Variables and model specification

Economic growth indicators (Real GDP)

The economic growth indicator used in this study will be the Real GDP. In the course of this study, the dependent variable is represented by economic growth which will have as main indicator real gross domestic product growth (real GDP), which can be defined as the total added value of goods and services produced in a country during a given period of time. This refers to the GDP adjusted for inflation.

Indicators of financial development

In this work, we will look at three main indicating variables of financial development. Our variables are derived from broad money, base money, and bank credit to private sector. Thus our variables are;

- **The ratio of broad money (M2) to GDP**

This variable is used to measure the monetization of the economy The M_2 monetary aggregate is usually defined as narrow money(M_1), comprising transferable deposits and currency outside money deposited in banks, plus quasi money comprising time, savings and foreign currency deposits of banks. In this study the Ratio M2to GDP

- **The ratio of credit to the private sector on GDP**

This ratio brings the exclusion of the public sector and shows more productive allocation of resources in the economy since private sector has ability to efficiently and productive utilizes funds if compared with the public sector.

- **The ratio of bank deposits to GDP**

This ratio shows the ability of the financial sector to finance the economy, it is an indicator of the financing strength of the economy.

3.2.2. Model construction and analysis

This study intends to use econometrics to bring out the impacts and causal relationships between financial development and economic growth. In this section of our work, we are going to be doing a presentation of the econometric model that will be used.

3.2.2.1 METHOD OF ESTIMATION

The method of estimation is the vector error correction model (VECM), The vector autoregressive (VAR) model with k explicative variables would be used to specify the nature of the VECM. Let us consider a VAR of the form;

$$y_t = \beta_0 + \beta_1 x_{1t} + \beta_2 x_{2t} + \cdots + \beta_k x_{kt} + \varepsilon_t \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where the variables y_t and x_{1k} are not stationary, intergrated of order one I(1) for example, there is thus a high risk of co-integration. In fact, an eventual existence of co-integration means that the variables are not stationary. It should also be noted that a linear combination of these variables are stationary, there are therefore co-integrated, estimation my ordinary least square permits us to calculate the residuals.

$$e_t = y_t - \hat{\beta_0} - \hat{\beta}_1 x_{1t} - \cdots - \hat{\beta}_k x_{1k} \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(2)$$

If this residual is stationary, we accept the hypothesis of co-integration between the variables. The Dickey fuller test of stationarity of residual should be carried from the critical values tabulated by MacKinnon (1991) with respect to the total number of variables of the model. The vector of co-integration is given by; (1-$\hat{\beta_0}$ -$\hat{\beta}_1$ ……..$\hat{\beta}_k$)

In a general manner, with dependent variable, and k independent variables (that is k+1 variables in total) there can exist k co-integration vectors in total, the number of co-integrated vectors linearly independent is called the rang of the co-integration.

3.2.2.2 TECHNIQUE OF ANALYSIS

Econometric estimation of model will be constructed in this work and it will serve as the main technique for the analysis of this work. In this section, we will be giving an explanation of the techniques that will be used in the cause of our analysis. We are going to have a preliminary test, which involves using the unit root test to test for stationarity of our variables, , then we will proceed to do a co-integration test, and finally, we will continue with a test for causality between the variables.

- **UNITARY ROOT TESTS**

Unit root test is used to check if a series is stationary or not, a process is stationary if the probability distribution does not change as time proceeds. The Augmented Dickey fuller test would be used in this analysis, the test can be written at level and at difference.

At level

$$\Delta x_t = \alpha x_{t-1} + \sum_{i=1}^{k} \beta_i \Delta x_{t-1} + \partial + y_t + \varepsilon_t \quad \text{.....(3)}$$

First difference

$$\Delta\Delta x_t = \alpha \Delta x_{t-1} + \sum_{i=1}^{k} \beta_i \Delta\Delta x_{t-1} + \partial + y_t + \varepsilon_t \quad \text{.....(4)}$$

- **TEST OF COINTEGRATION**

Engle and Granger (1987) observe that even though economic time series may wander through time, that is, may have the characteristic of non-stationary in their level, there may exist some linear combination of these variables that converges to a long run relationship over time. If the series individually are stationary only after differencing but one finds that a linear combination of their levels is stationary, then the series are said to be co-integrated. In the context of the present analysis, the existence of a common trend between the financial development and economic growth variables means that in the long run the behavior of the common trend will drive the behavior of the two variables, and that there exists some convergence of policies. In other words, a finding of co-integration would simply mean that the transmission mechanism underlying financial development led to growth hypothesis is stable, and thus more predictable over long periods. Furthermore, shocks that are unique to one time series will quickly dissipate as the variables adjust back to their common trend.

To investigate the existence of a long run equilibrium financial development and economic growth, we employ the maximum-likelihood test procedure established by Johansen and Juselius (1990) and Johansen (1991).[8] Specifically, Y_t is a vector of *n* stochastic

[8] This approach is especially appealing since it provides a unified framework for estimating and testing co-integrating relations in the context of a VECM model. Thus, by treating all the variables as endogenous, this approach avoids the arbitrary choice of the dependent variable in the co-integrating equations, as in the Engle-Granger methodology. They have also been shown to have good large- and finite-sample properties (see Phillips, 1991, Cheung and Lai, 1993, and Gonzala, 1994).

variables, then there exists a k-lag vector auto regression with Gaussian errors of the following form:

$$\Delta Y_t = \alpha + \beta_1 \Delta Y_{t-1} + \dots\dots\dots\dots \beta_{k-1} \Delta Y_{t-k-1} + \pi Y_{t-1} + Z_t \quad \text{.....(9)}$$

Where β_1,....., β_{k-1} and Δ are coefficient matrices, z_t is a vector of white noise process .

The focal point of conducting Johansen's co-integration test is to determine the rank (r) of the p x p Δ matrix. In the present application, there are four possible ranks. First, it can be of full rank, which would imply that the variables are given by a stationary process, which would contradict the earlier finding that the two variables are non-stationary. Second, the rank of Δ can be zero, in which case it indicates that there is no long run relationship between financial sector development and economic growth. In instances when π is of either full rank or zero rank, it will be appropriate to estimate the model in either levels or first differences, respectively. Finally, in the intermediate case when $0 < r < p$ (reduced rank), there are r co-integrating relations among the elements of Y_t and p-r common stochastic trends. The number of lags used in the vector auto regression is chosen based on the evidence provided by Akaike's Information Criterion (AIC) (Akaike, 1973).[9]

The co-integration procedure yields two likelihood ratio test statistics, referred to as the trace test and the maximum eigen value test, which will help determine which of the four possibilities is supported by the data. The study employs both tests to examine the sensitivity of the results to different tests. In the trace test, the null hypothesis that there are at most 'r' co-integrating vectors is tested against the general alternative, whereas in the maximum Eigen value test the null hypothesis of r co-integrating vectors is tested against the alternative of at least (r+1) co-integrating vectors.

- **GRANGER CAUSALITY TEST**

This test is used to determine the direction of causality or causal relationship between the variables. The general model is as follows.

$$x_t = \sum_{j=1}^{k} \alpha_i x_{t-j} + \sum_{j=1}^{k} \beta_i y_{t-j} + \varepsilon_t \quad \text{.....(10)}$$

[9] The optimal lag length chosen is the one that minimizes AIC, where $AIC = \ln\det S_k^n + (2d^2k)/T$

$$y_t = \sum_{j=1}^{k} \alpha_i \, y_{t-j} + \sum_{j=1}^{k} \beta_i x_{t-j} + \delta_t \quad \text{.....(11)}$$

ε_t And δ_t are white noise series and k is the maximum number of lags, the granger causality is very sensitive with number of lags used. The test have four possible outcomes, a) neither variable Granger causes the other b) unidirectional causality from x to y and not vice versa b) unidirectional causality from y to x and not vice versa and finally d) both variables cause each other.

3.3: Results of preliminary tests

3.3.1 Unit Root test for Cameroon

Variables	Augmented Dickey Fuller test			
	Level		First Difference	
	trend & inter	Probability	trend & inter	Probability
GDP growth (annual %)	-1.955622	0.6070	-9.632094	0.0000
Domestic credit to private sector (% of GDP)	-1.712342	0.7281	-4.777906	0.0021
Bank deposits as % of GDP	-1.216024	0.8941	-4.704637	0.0026
Money and quasi money (M2) as % of GDP	-1.548638	0.7961	-5.782701	0.0001

Table 1: unit root test for Cameroon,

Source: computed by author using Eview 7

The information from the augmented Dickey Fuller test shows that all the variables become stationary after first difference, thus they are co-integrated of order I(1). There is a possibility of co-integration between the variables. We would go further to verify the unit roots test for South Africa.

3.3.2 :Unit root test for South Africa

Variables	Augmented Dickey Fuller test			
	Level		First Difference	
	trend & inter	Probability	trend & inter	Probability
GDP growth (annual %)	-4.430677	0.0054	-6.540120	0.0000
Domestic credit to private sector (% of GDP)	-2.836390	0.1930	-7.143613	0.0000
Bank deposits as % of GDP	-1.254786	0.8854	-5.314465	0.0006
Money and quasi money (M2) as % of GDP	-1.381057	0.8518	-4.841592	0.0018

Table 2: unit root test for South Africa,

Source: computed by author using Eview 7

The table above equally shows that all the variables are integrated after first difference, thus they are I (1). There is therefore a possibility of co-integration. We would verify if the variables have a long term relationship by testing for co-integration below.

3.3.3: Johansen co-integration

3.3.3.1: Johansen co-integration test for Cameroon

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.559481	52.77691	47.85613	0.0161
At most 1	0.281982	19.16504	29.79707	0.4811
At most 2	0.122191	5.583360	15.49471	0.7441
At most 3	0.005836	0.239983	3.841466	0.6242

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level

* denotes rejection of the hypothesis at the 0.05 level

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

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.559481	33.61188	27.58434	0.0074
At most 1	0.281982	13.58167	21.13162	0.4003
At most 2	0.122191	5.343377	14.26460	0.6980
At most 3	0.005836	0.239983	3.841466	0.6242

Max-eigenvalue test indicates 1 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: Co-integration test for Cameroon

Source: computed by author using Eview 7

The result above shows that there is one co-integrating relationship that is the linear combination of these variables become stationary in the long-run for the economy of Cameroon.

3.3.3.2: Johansen co-integration test for South Africa

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.576463	56.60239	47.85613	0.0061
At most 1	0.290240	22.23779	29.79707	0.2855
At most 2	0.146402	8.524634	15.49471	0.4111
At most 3	0.053346	2.192851	3.841466	0.1387

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.576463	34.36460	27.58434	0.0058
At most 1	0.290240	13.71316	21.13162	0.3890
At most 2	0.146402	6.331783	14.26460	0.5710
At most 3	0.053346	2.192851	3.841466	0.1387

Max-eigenvalue test indicates 1 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: Co-integration test for South Africa

Source: computed by author using Eview 7

We see from the two statistics that there is one co-integrating equation, thus there is one long-run relationship which relates economic growth and the explanatory factors of financial development.

3.4: Test of causality

3.4.1 Test of causality for Cameroon

Null Hypothesis:	Obs	F-Statistic	Prob.
DEPOSIT_GDP does not Granger Cause CREDIT_GDP	41	0.88704	0.4207
CREDIT_GDP does not Granger Cause DEPOSIT_GDP		4.87425	0.0134
GDPPC does not Granger Cause CREDIT_GDP	41	3.07707	0.0584
CREDIT_GDP does not Granger Cause GDPPC		2.09400	0.1379
M2_GDP does not Granger Cause CREDIT_GDP	41	0.14946	0.8617
CREDIT_GDP does not Granger Cause M2_GDP		3.66441	0.0356
GDPPC does not Granger Cause DEPOSIT_GDP	41	0.76566	0.4725
DEPOSIT_GDP does not Granger Cause GDPPC		1.65335	0.2056
M2_GDP does not Granger Cause DEPOSIT_GDP	41	2.67171	0.0828
DEPOSIT_GDP does not Granger Cause M2_GDP		0.12458	0.8832
M2_GDP does not Granger Cause GDPPC	41	5.01629	0.0120
GDPPC does not Granger Cause M2_GDP		6.81146	0.0031

Table 5: Granger causality test for Cameroon

Source: computed by author using Eview 7

The results above shows that credit to private sector granger cause deposits while GDP per capital granger cause credit to private sector. Credit to private sector also granger cause M2. We equally notice that m2 granger cause GDP per capital and GDP per capital granger cause M2. This means there is bidirectional causality from GDP to M2 and from M2 to GDP.

3.4.2: Granger causality for South Africa

Null Hypothesis:	Obs	F-Statistic	Prob.
DEPOSIT does not Granger Cause CREDIT	41	2.04856	0.1437
CREDIT does not Granger Cause DEPOSIT		1.91126	0.1626
GDP does not Granger Cause CREDIT	41	1.24627	0.2997
CREDIT does not Granger Cause GDP		0.24075	0.7873
M2 does not Granger Cause CREDIT	41	0.77006	0.4705
CREDIT does not Granger Cause M2		1.23758	0.3021
GDP does not Granger Cause DEPOSIT	41	11.2987	0.0002
DEPOSIT does not Granger Cause GDP		1.01086	0.3740
M2 does not Granger Cause DEPOSIT	41	12.7519	7.E-05
DEPOSIT does not Granger Cause M2		3.44345	0.0428
M2 does not Granger Cause GDP	41	0.50769	0.6061
GDP does not Granger Cause M2		3.42855	0.0434

Table 6: Granger causality test for South Africa

Source: computed by author using Eview 7

The results for South Africa shows that; GDP granger cause deposit while deposit in turn granger because M2, we also see that GDP granger cause M2. We now proceed to estimate the VECM,

3.5: Impact of financial sector development on economic Growth

Here we run a regression of the vector error correction model which brings out the

The long-run and effects of financial sector development on economic growth.

3.5.1: Impact of financial sector development on economic growth in Cameroon

Long Term impact of financial development on Economic growth in Cameroon

The results below shows that the long run causality term is negative and significant at 5% level of confidence therefore there in the long run economic growth and financial development turn to evolve together. The rate of adjustment of shocks from the previous year is at 61.18%. This means the rate at which errors are corrected for the model to regain its long-run equilibrium is 61.18%

	Coefficient	Std. Error	t-Statistic	Prob.
Long run causality	-0.611800	0.225599	-2.711899	0.0110
GDPPC(-1))	-0.180956	0.171717	-1.053799	0.3004
GDPPC(-2)	-0.287751	0.148736	-1.934645	0.0625
CREDIT_GDP(-1)	0.732111	0.402031	1.821033	0.0786
CREDIT_GDP(-2)	0.011298	0.458211	0.024656	0.9805
DEPOSIT_GDP(-1)	-0.352807	1.192918	-0.295752	0.7695
DEPOSIT_GDP(-2)	-0.376684	1.067804	-0.352765	0.7267
M2_GDP(-1)	-0.785359	1.273834	-0.616532	0.5422
M2_GDP(-2)	-0.377488	0.905028	-0.417101	0.6796
Constant	0.362793	0.835739	0.434099	0.6673
R-squared	0.629599	Mean dependent var		0.016522
Adjusted R-squared	0.518478	S.D. dependent var		6.868186
S.E. of regression	4.765956	Akaike info criterion		6.173191
Sum squared resid	681.4300	Schwarz criterion		6.595411
Log likelihood	-113.4638	Hannan-Quinn criter.		6.325852
F-statistic	5.665914	Durbin-Watson stat		2.187613
Prob(F-statistic)	0.000140			

Table 7: VECM regression results for Cameroon

Source: computed by author using Eview 7

Short Term impact of financial development on Economic growth in Cameroon

Here we are going to use the wald test to test the level of significance of the variables, the objective is to verify if there is any short run causality between financial development and economic growth.

Short-term impact of credit to private sector on economic growth.

The table below shows the results of the test

Wald Test:
Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	1.972101	(2, 30)	0.1568
Chi-square	3.944203	2	0.1392

Null Hypothesis: CREDIT_GDP(-1)=
CREDIT_GDP(-2)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	0.732111	0.402031
C(5)	0.011298	0.458211

Restrictions are linear in coefficients.

The results from above shows that there is no short –run causality running from credit to private sector to GDP. This means that in the short run there is no significant effect of credit to private sector on GDP.

Short-term impact of bank deposits on economic growth

Wald Test:
Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	0.096587	(2, 30)	0.9082
Chi-square	0.193174	2	0.9079

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	-0.352807	1.192918
C(7)	-0.376684	1.067804

Restrictions are linear in coefficients.
Here we equally noticed that there is no short run relationship between bank deposits and GDP.

Short-term impact of M2 on economic growth.

Wald Test:
Equation: Untitled

Test Statistic	Value	Df	Probability
F-statistic	0.202335	(2, 30)	0.8179
Chi-square	0.404671	2	0.8168

Null Hypothesis: C(8)=C(9)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	-0.785359	1.273834
C(9)	-0.377488	0.905028

Restrictions are linear in coefficients.

There is no short run relationship between m2 and GDP, from the above analysis we noticed that there is no short-run relationship between the independent variables and the dependent variables, there is a long run relationship between the two.

Tests for Robustness of the model

Test for serial correlation

Here we use theBreusch-Godfrey Serial Correlation LM Test

Breusch-Godfrey Serial Correlation LM Test:

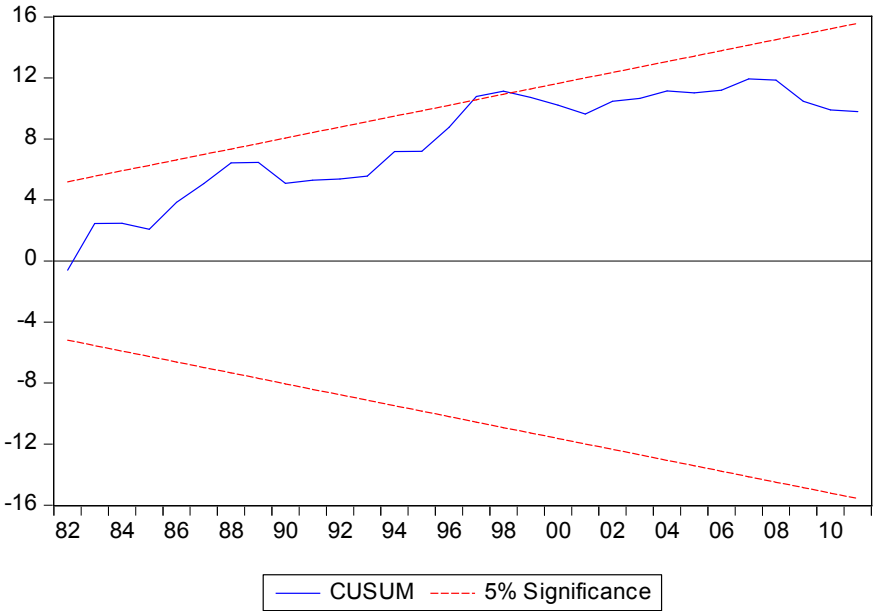
F-statistic	1.230979	Prob. F(2,28)	0.3073
Obs*R-squared	3.232830	Prob. Chi-Square(2)	0.1986

The results above show that our model is not serially correlated, thus it is a good model.

Test for stability of the model

Here we are going to use the CUSUM test

Figure1: CUSUM test for Cameroon



The test shows that the model is stable at 5% level of significance.

Impact of financial sector development on economic growth in South Africa

The result of the regression of the vector error correction model is presented below.

	Coefficient	Std. Error	t-Statistic	Prob.
Long run causality	-0.860965	0.246305	-3.495518	0.0015
GDP(-1)	-0.087376	0.235437	-0.371124	0.7132
GDP(-2)	-0.010229	0.198123	-0.051631	0.9592
DEPOSIT(-1)	-1.443767	0.421185	-3.427873	0.0018
DEPOSIT(-2)	-0.339083	0.360457	-0.940705	0.3544
CREDIT(-1)	0.187626	0.111212	1.687106	0.1020
CREDIT(-2)	-0.047944	0.102800	-0.466382	0.6443
M2(-1)	0.610875	0.212356	2.876659	0.0073
M2(-2)	0.492896	0.258104	1.909679	0.0658
constant	-0.356500	0.376232	-0.947553	0.3509

R-squared	0.528173	Mean dependent var	-0.016993
Adjusted R-squared	0.386625	S.D. dependent var	2.765354
S.E. of regression	2.165777	Akaike info criterion	4.595754
Sum squared resid	140.7177	Schwarz criterion	5.017973
Log likelihood	-81.91507	Hannan-Quinn criter.	4.748415
F-statistic	3.731402	Durbin-Watson stat	1.982611
Prob(F-statistic)	0.003052		

Table 8: VECM regression results for South Africa

Source: computed by author using Eview 7

Long-run impact of financial development on economic growth

The results from the VECM above shows that there is long run causality between economic growth and financial development, we notice that the long run causality term is negative and significant at 5% level of confidence. This means that the speed of adjustment to shocks from disequilibrium is 86.09%, this is higher than that of Cameroon because South Africa has better and well developed financial system so they quickly return to their long run equilibrium than Cameroon.

Short run impact of credit to private sector on economic growth in South Africa

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	1.932278	(2, 30)	0.1624
Chi-square	3.864555	2	0.1448

Null Hypothesis: C(6)=C(7)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(6)	0.187626	0.111212
C(7)	-0.047944	0.102800

Restrictions are linear in coefficients.

From the table above there is no short run causality from credit to private sector to GDP.

Short run impact of deposit on economic growth in South Africa

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	5.877873	(2, 30)	0.0070
Chi-square	11.75575	2	0.0028

Null Hypothesis: C(4)=C(5)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(4)	-1.443767	0.421185
C(5)	-0.339083	0.360457

Restrictions are linear in coefficients.

The results above shows that there exist a short run causality from deposits to GDP, this means that in the short run increase in deposits have a positive impact on GDP

Short run impact of M2 on economic growth in South Africa

Wald Test:
Equation: Untitled

Test Statistic	Value	df	Probability
F-statistic	4.808494	(2, 30)	0.0154
Chi-square	9.616988	2	0.0082

Null Hypothesis: C(8)=C(9)=0
Null Hypothesis Summary:

Normalized Restriction (= 0)	Value	Std. Err.
C(8)	0.610875	0.212356
C(9)	0.492896	0.258104

Restrictions are linear in coefficients.

The table equally shows that there is short run causality from M2 to GDP, from the results we conclude that there is a short run impact of M2 and deposits on GDP and no short run impact of credit to private sector on GDP. Meanwhile there is a long run impact of all the variables on GDP. For Cameroon we only have a long run impact there is no short run impact, this is principally because South Africa has a well-developed financial system that can be used in the short term to stimulate growth**.**

Tests for robustness of our model

Serial correlation test

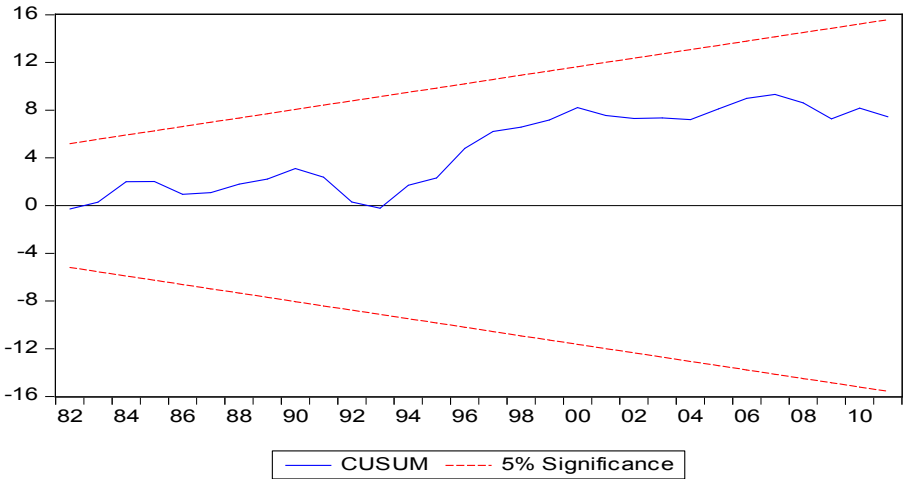
Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.059735	Prob. F(2,28)	0.9421
Obs*R-squared	0.169946	Prob. Chi-Square(2)	0.9185

The results show that there is no serial correlation between the variables and the error term thus our model is good.

Stability test

Figure 2: CUSUM Test for South Africa



The graph shows that our model is very stable over time at 5% level of confidence.

Conclusion

From our analysis, in Cameroon we noticed a long-run relationship between economic growth and financial development with speed of adjustment of 0.6, that is 60% of the errors of last year are adjusted this year while for south Africa there is a short-run relationship between bank deposits and economic growth, there is also a long-run relationship between economic growth and financial development. Here the speed of adjustment is 0.86 that is 86% of the errors of the previous year is corrected the following year, this means that the South African economy moves towards its long-run equilibrium faster after economic shocks thanks to its good financial developed economy. We of notice that there is a gap of 0.26, this means that for the economy of Cameroon to be emergent, the speed of long-run adjustment should increase by 0.26.

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