

## Financial development and economic growth: empirical evidence from Namibia (1990Q1-2011Q4)

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### Abstract

*I attempt to empirically establish the relationship between financial development and economic growth in Namibia using the cointegration framework. The main objectives of the article are to econometrically determine the nexus between financial development and economic growth using multivariate Granger causality tests, impulse response functions and variance decomposition, as well as propose some policy alternatives for the policy makers. The article contributes to macroeconomic literature on the financial development-economic growth relationship given the fact that it is one of the few researches on the same topic ever done on Namibia. The article finds that there is a unidirectional relationship between financial development and economic growth in Namibia running from economic growth to financial development. The findings imply that Namibia realises financial sector development when the economy grows and not the other way round. The fact that the financial services sector is not significantly influencing economic growth in Namibia is a real cause for concern which implies that either the banking sector is too small to have any significant impact on the economy or it is uncompetitive and therefore inefficient. The article recommends that one way of reforming the financial sector in Namibia is to subject it to some form of competition through the licensing of new banks, of course, taking into account the size of the Namibian market.*

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**Key words:** Financial development, banks, economic growth, cointegration, unit root tests, Namibia

**JEL Classification:** B22, C32, E44 and G21

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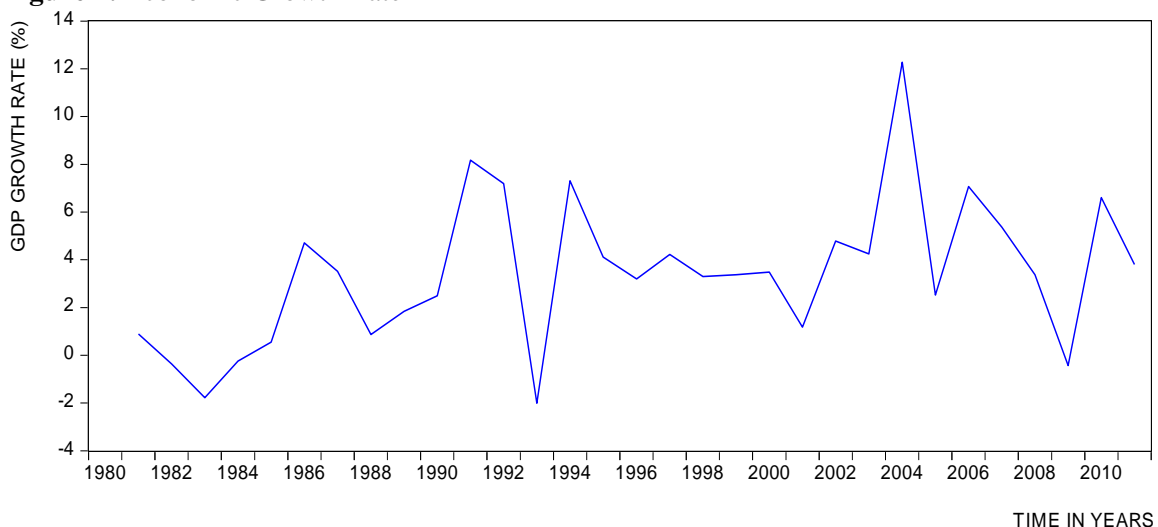
## 1. Introduction

The main objective of the article is to investigate the relationship between financial development and economic growth in Namibia. It seeks to unravel whether these two variables have a causal affect on each other. In addition, the study also establishes to what extent and in what direction the two variables influence each other. Very few studies have been carried out on the nexus between financial development and economic growth in Namibia, and this makes the current study significant in terms of its contribution to economic literature in Namibia. The article also contributes significantly in terms of its methodology which has not been applied in similar previous studies on Namibia<sup>2</sup>.

Namibia is a fast industrialising middle income country in Africa (Ziramba and Kavezeri, 2012). The financial services sector for Namibia is still very small mainly due to the fact that it caters for a small population of just over 2 million people. Namibia has four commercial banks whose number has not increased since independence in 1990. As expected, the four existing commercial banks have multiple roles, which include offering commercial banking services, mortgage services, merchant and investment banking services among others. The banking sector in Namibia is protected from competition by the government as evidenced by the fact that no new banks have been licensed since independence. This is good for the banks because they remain profitable and financially sound. However, protecting banks from competition often results in the increase in service fees and inefficiency (Mishkin, 2009).

I also note that since the attainment of independence in 1990, the Namibian government has made great strides to grow the economy which performed below its potential before independence due to the armed struggle and also the fact that Namibia was considered as an annex or province of South Africa. This is illustrated by the fact that the average growth rate for Namibia between 1980 and 1989 was 3.3% and that for the period 1990 to 2011 was 4.4% which was a marked improvement from the pre-independence era.

Figure 1: Economic Growth Rate



<sup>2</sup>Multivariate Granger causality tests are used within the cointegration framework. Specifically, we test the integration properties of the data and employ the Johansen procedure to detect the existence and number of cointegrating vectors. The causal links are then tested in the resulting VAR/VECM framework.

After independence in 1990, the government made sure that certain economic structures that were not available before independence were developed and these include a vibrant financial system (financial markets and financial intermediaries), the NSX, the Bank of Namibia, just to name a few.

## **2. Rationale and Objectives of the Study**

The contribution of the banks to national and global economic growth cannot be overemphasised. The nexus between financial development and economic growth is a contentious issue which has stimulated a lot of research. A wealth of literature has addressed this issue by either cross-country or time series analysis, as exemplified by, Masoud and Hardaker (2012), Lanyi and Saracoglu (1983) and Roubini and Sala-i-Martin (1992). These studies usually provide important policy implications especially for developing countries which are under researched. Notably, Namibia has not featured in the cross country studies that have included some of the Sub Saharan African countries. Single country studies have also been carried out in other Sub Saharan African countries like Zambia, South Africa, Nigeria, Ghana and Zimbabwe while none have been carried out in Namibia. This is despite the realisation that causal links between financial development and economic growth is of importance for the designing of development strategies in Namibia and other developing countries. The article therefore contributes to economic literature by empirically investigating the causal links between financial development and economic growth in Namibia.

In view of the above issues, the article attempts to achieve the following objectives:

- a. To econometrically determine the causal links between financial development and economic growth in Namibia.
- b. To establish how financial development and economic growth influence each other by applying impulse response functions and variance decomposition techniques.
- c. To highlight policy options the policy makers need to consider.

## **3. Literature Survey**

Many studies have been carried out on different economies on the nexus between financial development and economic growth. The results of these studies are a mixed bag. Some of the studies established that financial development leads to economic growth and others found that economic growth leads to the development of the financial sector. In addition, other studies found that the relationship between financial development and growth is bidirectional, that is, financial development leads to growth and vice versa. The mixed results that researchers continue to get indicate that there is still need for more research to be carried out on the finance growth nexus using more innovative research techniques.

Wachtel (2003) is one of the researchers who studied the relationship between financial development and economic growth. He argues that the financial sector is important because the financial intermediaries facilitate resource allocation. He further contends that well functioning financial intermediaries improve the efficiency of capital allocation, encourage savings and result in greater investment. King and Levine (1993a) were among the first to argue that the efficiency enhancing property of the financial sector growth is more important than the impact on the quantity of investment. Thus, the financial services sector's impact on resource allocation cannot be overemphasised. According to Sunde (2012), pioneering work on the financial development-economic growth relationship is attributed to Schumpeter (1912). The latter contends that well functioning financial intermediaries impel technological improvement by choosing and funding entrepreneurs with the greatest probability to successfully implement innovative products and production processes.

Liu & Shu (2002) also argue that it is intuitively plausible that the financial intermediaries' functions in pooling resources, offering liquidity, screening entrepreneurs and so on produce externalities in investment, which are important for non diminishing returns in endogenous growth models. A number of models have formally integrated the functions of financial institutions into endogenous growth theories and hence provided theoretical foundation for empirical studies. Although financial development is important for economic growth, the direction of causality between the two is not necessarily unidirectional as the level of economic development may also influence financial development. The issue of causality between financial development and economic growth has been raised from earlier on in literature.

As mentioned previously, empirical literature shows that the relationship between financial development and economic growth is still uncertain. The unidirectional causality from financial development to economic growth has been established by Gupta (1984), Demetriades and Hussein (1996), Neusser and Kugler (1998) and N'Zue (2006) among others. Fase and Abma (2003), Padhan (2007), Sunde (2010), Demetriades and Hussein (1996), Rousseau and Watchel (2000) and Biswas (2008) and Sunde (2012) found bidirectional causality between finance and economic growth. Of these, the only study done on Namibia is the one done by Sunde in 2010 and this study used the basic bivariate Granger causality tests.

The main problem with studies that only concentrate on bivariate causality between financial indicators and growth variables is that the bivariate causality test results may be seriously biased if important variables are omitted from the model. Hence, the current study uses more variables and more rigorous estimation and testing techniques to quantify the relationship between financial development and economic growth in Namibia using multivariate causality tests.

## **4. Methodology**

### **4.1 Granger Causality Test**

The dynamic relationship is the simplest technique to use to examine the cause and effect relationship between variables and it is applied in the context of the simple linear regression model. However, the simple linear regression model fails to capture the underlying dynamic causality between variables which is efficiently analysed by Granger (1969) in terms of the Granger causality tests. Before using the multivariate Granger causality test one has to ensure that all the variables are stationary in levels. If there is no cointegrating vector, multivariate Granger causality tests are executed through first differencing the variables of the vector autoregression (VAR) model. If the variables are cointegrated Granger causality tests can be done through the use of the vector error correction (VEC) model. This is supported by Engle and Granger (1987) who argue that if two time series are cointegrated then they are necessarily causally related. It is therefore important to test for stationarity properties of variables before operationalising the Granger causality tests.

Later, Sims (1972) contended that Granger causality in a bivariate system is primarily due to an omitted variable, which may cause either one or both variables in the univariate system. In such circumstances the causal inferences are unacceptable. Padhan (2007), thus, argues that testing for causality in possibly unstable VARs with the possibility that cointegration also exists has become a very contentious issue in econometrics. The issue was first addressed by Sims et al (1990) in a trivariate VAR model which was later extended to include more variables by Toda and Phillips (1993). Toda and Phillips (1993) proposed the use of Wald test statistics for testing Granger non-causality in unrestricted VARs which have limiting  $\chi^2$  distributions. They further argued that when estimating a VAR model in levels, Wald tests have a limiting  $\chi^2$  distribution estimation procedure on causality tests.

In the current study the empirical investigation of the long run relationship between financial development and economic growth is carried out in the VAR framework. Estimation and testing for long run causal relationships in the context of vector autoregression representation of variables is conducted using the Johansen (1988) and Johansen and Juselius (1992) procedures. These are improved versions of the Granger Causality tests described above. Bivariate causality, between financial development (FD) and economic growth (EG) for variables that are not cointegrated can be rewritten in the following form:

$$\Delta \ln EG_t = \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta \ln EG_{t-i} + \sum_{j=1}^p \alpha_{2j} \Delta \ln FD_{t-j} + \alpha_3 \Phi + \varepsilon_t \quad [1]$$

$$\Delta \ln FD_t = \beta_0 + \sum_{i=1}^n \beta_{ij} \Delta \ln FD_{t-i} + \sum_{j=1}^p \beta_{2i} \Delta \ln EG_{t-j} + \beta_3 \Psi + \varepsilon_t \quad [2]$$

where,  $\Delta$  denotes the difference operator, EG and FD are indicators of economic growth and financial development respectively.  $\Phi$  and  $\Psi$  are the set of supplementary variables;  $\Phi$  and  $\Psi$  both denote the labour force, interest rates and the dummy for the implementation of the National Development Plan (NDP). Although cointegration signals the presence of Granger causality in at least one direction, it does not signify the direction of causality between variables. The direction of causality can only be established through the use of the Wald tests in equations [1] and [2] above. The Wald and the F-tests which are measures of short term (or weak) Granger causality are used to test for joint significance of the independent variables that explain the dependent variable (Zachariadis, 2006).

#### 4.2 Data Sources and Data

The data used in this study was mainly sourced from the World Bank Financial Statistics and the Bank of Namibia (BoN). Finding complete statistical data for Namibia was an arduous task. For this article, the data that is available is the data for the period 1990Q1 to 2011Q4. Data availability therefore played a critical role in the choice of the sample period studied; otherwise, the article could as well have incorporated the pre-independence era in the study.

The article uses real GDP and real GDP per capita as proxies for economic growth (EG) and the level of credit to the private sector by financial intermediaries and M2 as a percentage of GDP as proxies for financial development<sup>3</sup>. What represents an appropriate proxy of financial development is still controversial in literature. Measures like M1, M2 and M3 as a percentages of GDP have also been used as proxies for financial development (see Fase and Abma, 2003; Gelb, 1989 etc). These proxies can be considered as good approximations for the financial development because if they are increasing one can conclude that the financial sector is growing and hence developing. Both proxies of each variable are used in this study but I only report the results of the first respective proxy for each variable because the results from the other respective proxies give very similar results.

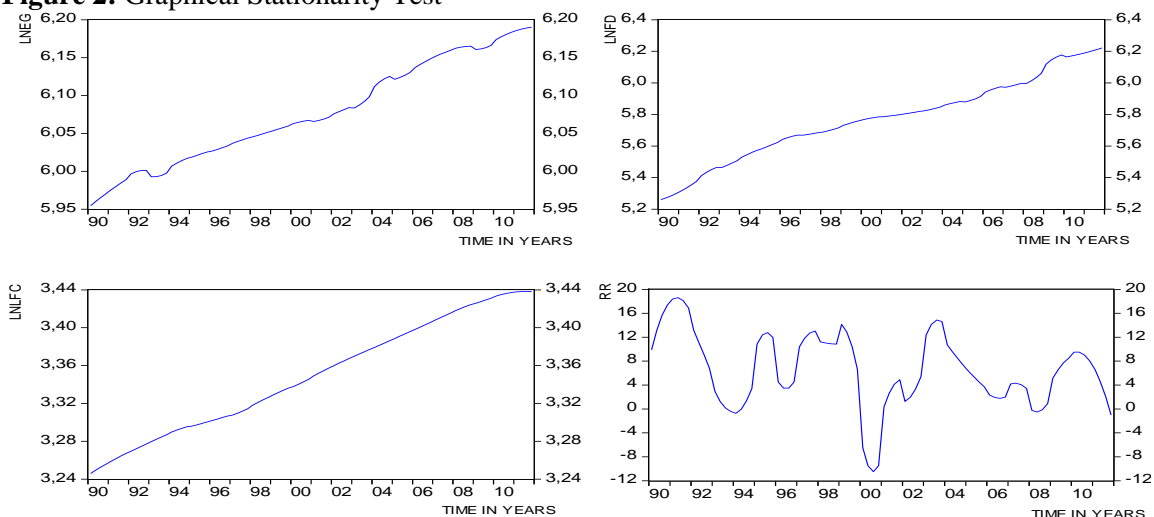
<sup>3</sup> The data used in the research can be obtained from the researcher on request.

## 5. Major Findings and Discussion

### 5.1. Tests for Stationarity

Figure 1, plots the individual time series variables employed in the study. Financial development, economic growth and the labour force are converted to logarithms and real interest rates are plotted using raw figures. If the graph for each variable shows a trend or distinct cycles then the variable is non stationary. The figure shows that all variables are non-stationary, that is, they have unit roots. There are many methods that can be used to test for stationarity; and in this study we chose to use the Augmented Dickey Fuller (ADF) which is the most popular test used to confirm the order of integration of variables.

**Figure 2: Graphical Stationarity Test**



I use the ADF test to find the number of times I need to difference the variables to make them stationary. First, we test for unit roots in levels and the results are not shown. I then subject the first and second differences of the series to unit roots tests to confirm the order of integration; and the results are shown in Table 1 below. The results show that all the variables have unit roots. LNEG needs to be differenced once to achieve stationarity and LNFD, LNLFC and RR need to be differenced twice to induce stationarity. As Engle and Granger (1987) argue if individual time series are non stationary, their linear combinations could be stationary if the variables were integrated of the same order. Since some of these variables are integrated of the same order it is possible to invoke the linear combinations of the multivariate order. Once the stationarity status of the variables is established, one then moves to the next step which is to test for cointegration among the variables. This is the test which determines whether one should use the VAR or VECM methodology.

**Table 1: ADF Test**

Variable	Model	1 <sup>st</sup> Difference	2 <sup>nd</sup> Difference
Conclusion			
LNEG	Intercept	-3.8021**	I(1) D(LNEG)
	Trend & intercept	-3.7736**	
LNFD	Intercept	-6.6274*	I(2) D(LNFD,2)
	Trend & intercept	-6.5892*	
LNLFC	Intercept	-5.6176*	I(2) (LNLFC,2)
	Trend & intercept	-5.6860*	
RR	Intercept	-6.4230*	I(2) D(RR,2)
	Trend & intercept	-6.4240*	

The D before each variable in the conclusion column denotes differencing.

The stars \*, \*\*, \*\*\* denote significance at 1%, 5% and 10% levels of significance.

The critical values for the ADF test statistic are -4.0314, -3.4450 and -3.1447.

## 5.2 Cointegration Tests

To test for cointegrating relationships we first need to decide whether deterministic components such as constant, time trend and dummy variables should be included in the model. Using the general to specific approach, a model with five lags, a constant and trend was chosen as the most appropriate model for the cointegration space. The cointegration tests, using the trace and the maximum eigenvalue methods in table 2 show that all the variables included in the model are not cointegrated. This means that we have to use the VAR methodology and not the VECM to do our estimations. The article uses the variables in their stationary levels.

**Table 2: Johansen cointegration tests for D(LNEG) D(LNFD,2) D(LNLFC,2) D(RR,2) and NDP**

Hypothesised No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Probabilities**
r = 0	0.289481	75.83494	69.81889	0.0653
r ≤ 1	0.211543	46.78538	47.85613	0.0828
r ≤ 2	0.165962	26.58284	29.79707	0.1123
r ≤ 3	0.103018	11.15735	15.49471	0.2020
r ≤ 4	0.022291	1.916164	3.841466	0.1663

Trace test indicates no cointegrating equation(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

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

Hypothesised No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Probability**
r = 0 *	0.289481	29.04955	33.87687	0.1692
r ≤ 1	0.211543	20.20255	27.58434	0.3273
r ≤ 2	0.165962	15.42549	21.13162	0.2602
r ≤ 3	0.103018	9.241186	14.26460	0.2666
r ≤ 4	0.022291	1.916164	3.841466	0.1663

Max-eigenvalue test indicates no cointegration equation(s) at the 0.05 level

\* denotes rejection of the hypothesis at the 0.05 level

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

### 5.3. Lag Length Determination

Table 3 shows the results of the lag length selection test. The article uses several criteria to determine the maximum lag length. In particular, the Akaike Information Criteria (AIC), the sequential modified LR test statistic and the Schwarz Information Criterion (SIC) are used in order to determine the appropriate maximum lag length to use for each of the endogenous variables. All these criteria concur that the maximum lag length for the two endogenous variables is five (5). This implies that one should estimate the vector autoregression for this study using the lag length of five (5) for each endogenous variable.

**Table 3** VAR Lag Order Selection Criteria for (D(LNEG) D(LNFD,2)

Lag	LogL	LR	FPE	AIC	SC	HQ
0	23.60131	NA	0.001998	-0.540033	-0.480482	-0.516157
1	403.3402	730.9973	1.66e-07	-9.933505	-9.754853	-9.861878
2	426.5660	43.54832	1.03e-07	-10.41415	-10.11640	-10.29477
3	427.7582	2.175911	1.10e-07	-10.34396	-9.927101	-10.17683
4	429.3774	2.874000	1.17e-07	-10.28443	-9.748479	-10.06955
5	460.9289	54.42628*	5.90e-08*	-10.97322*	-10.31816*	-10.71059*
6	473.0753	20.34538	4.83e-08	-11.17688	-10.40273	-10.86650
7	473.3621	0.465961	5.31e-08	-11.08405	-10.19079	-10.72592
8	474.0226	1.040336	5.80e-08	-11.00057	-9.988204	-10.59468

After confirming the lag length and ensuring that the variables are not cointegrated the next step is to estimate equations [1] and [2]. The estimation is done using the variables in their stationary levels of integration. Equations [1] and [2] are the two VAR equations that I estimate which are explained by lagged values of D(LNEG) and D(LNFD,2); log of labour force (DLFC,2), national development plan implementation (NDP) and interest rates D(RR,2). Labour force is significant in explaining economic growth but insignificant in explaining financial development. Real interest rates and the implementation of the national development plan are both insignificant in explaining both economic growth and financial development. The results also show that lagged values of each endogenous variable are significant in explaining the endogenous variable.

### 5.4 Analysis and Discussion

As shown in Table 4, the model with a lag length of five (5) passes various diagnostic tests and there is no serial correlation and heteroscedasticity problems with the residuals. The article specifically test the efficiency of the models by using the Jarque-bera normality test, the Breusch-Godfrey (B-G) LM autocorrelation test, and the Breusch-Godfrey-Pagan (B-G-P) and ARCH heteroscedasticity tests. The results of these tests signify that both models do not suffer from autocorrelation and heteroscedasticity. However, both models suffer from lack of residual normality. Since two of these three efficiency tests performed well I accept the results on the basis of these two tests and ignore the normality test results. The CUSUM tests whose results are summarised in Figures 2 and 3 below also show that the models are good. The test shows that the parameters of the two models are stable at the 95% confidence levels.

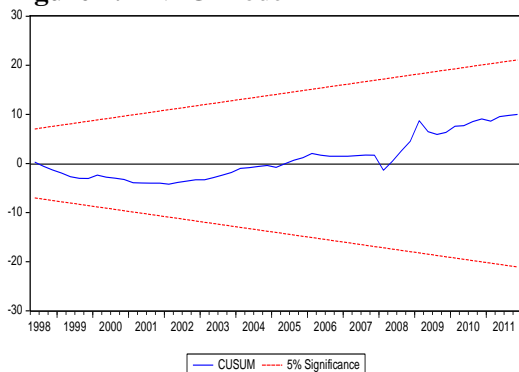


**Table 4:** Vector Autoregression Estimates, t-statistics in [ ]

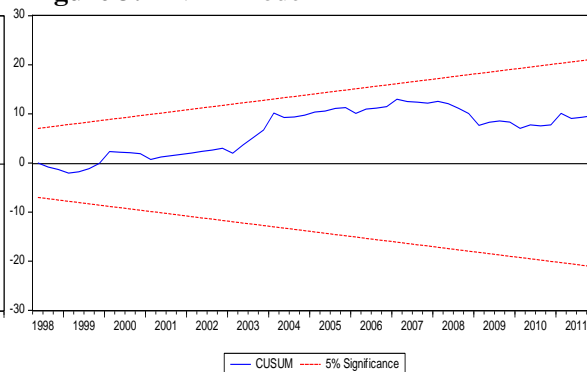
	Equation 1	Equation 2
D(LNEG(-1))	0.603864 <b>[5.64841]</b>	0.463556 [1.24796]
D(LNEG(-2))	0.103924 [1.09502]	-0.104594 [-0.31719]
D(LNEG(-3))	0.032167 [0.33618]	-0.023980 [-0.07213]
D(LNEG(-4))	-0.734720 <b>[-7.44194]</b>	-0.937240 <b>[-2.73228]</b>
D(LNEG(-5))	0.430798 <b>[3.87545]</b>	1.302907 <b>[3.37344]</b>
D(LNFD(-1),2)	0.009434 [0.31331]	-0.189937 [-1.81557]
D(LNFD(-2),2)	-0.002273 [-0.09058]	-0.001955 [-0.02241]
D(LNFD(-3),2)	-0.004504 [-0.17973]	0.028329 [0.32538]
D(LNFD(-4),2)	-0.000193 [-0.00768]	-0.580189 <b>[-6.64929]</b>
D(LNFD(-5),2)	0.004131 [0.13880]	-0.107396 [-1.03847]
C	0.001302 [2.49162]	-0.002499 [-1.37688]
D(LNLFC,2)	-0.540673 <b>[4.19145]</b>	-8.418813 [-0.93527]
NDP	0.000161 [0.38231]	0.000200 [0.13608]
D(RR,2)	-9.20E-05 [-1.34470]	0.000284 [1.19565]
Adj R-squared	0.60603	0.63188
F-Statistic (Prob)	7152.021(0.0000)	6647.86(0.000)
DW Statistic	2.155249	1.993733
Jarque-bera (p-value)	615945(0.000)	309.6723(0.0000)
B-G LM (prob $\chi^2$ )	3.55700(0.1689)	0.440576(0.8023)
B-G-P test (prob $\chi^2$ )	8.357965(0.9086)	19.02971(0.2124)
ARCH test (prob $\chi^2$ )	0.089956(0.7642)	3.181991(0.2037)

NB: In the results above we show the coefficient of each variable and its calculated t-statistic in brackets ( ).

**Figure 2:** LNEG Model



**Figure 3:** LNFD Model

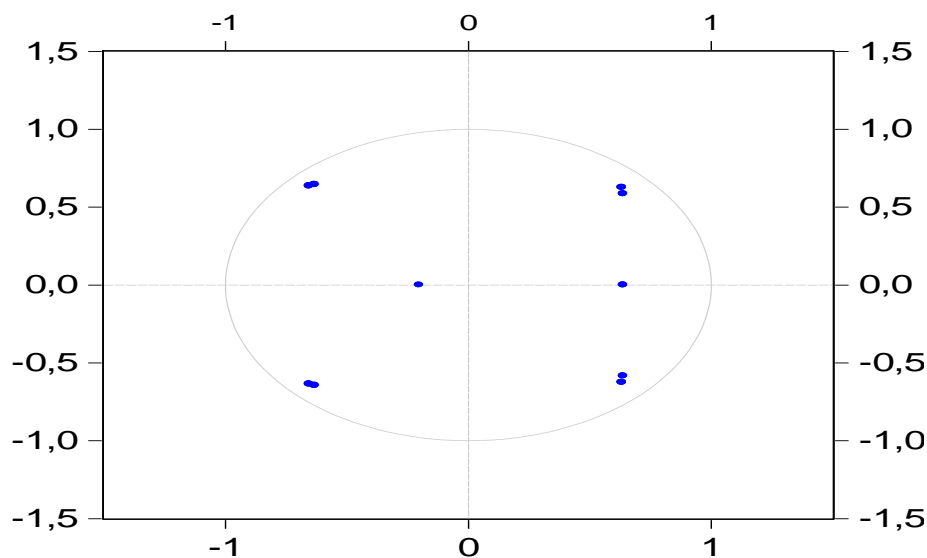


### 5.4.1 AR Roots Test

After the estimation of the model using Eviews 7.0, an AR Roots test is used to test the stability of the model. The AR Roots show that the VAR model is stationary because all the roots of the characteristic AR polynomial have absolute values of less than one which lie inside the unit circle indicating that the model is stable and can therefore be used in further analysis.

**Figure 4: AR Roots**

Inverse Roots of AR Characteristic Polynomial



**Table 5: VAR Granger Causality/Block Exogeneity Wald Tests**

**Dependent variable: D(LNEG)**

<u>Excluded</u>	<u>Chi-square</u>	<u>df</u>	<u>Probability</u>
D(LNFD,2)	0.156072	5	0.9995
All	0.156072	5	0.9995

**Dependent variable: D(LNFD,2)**

<u>Excluded</u>	<u>Chi-square</u>	<u>df</u>	<u>Probability</u>
D(LNEG)	13.71179	5	0.0175
All	13.71179	5	0.0175

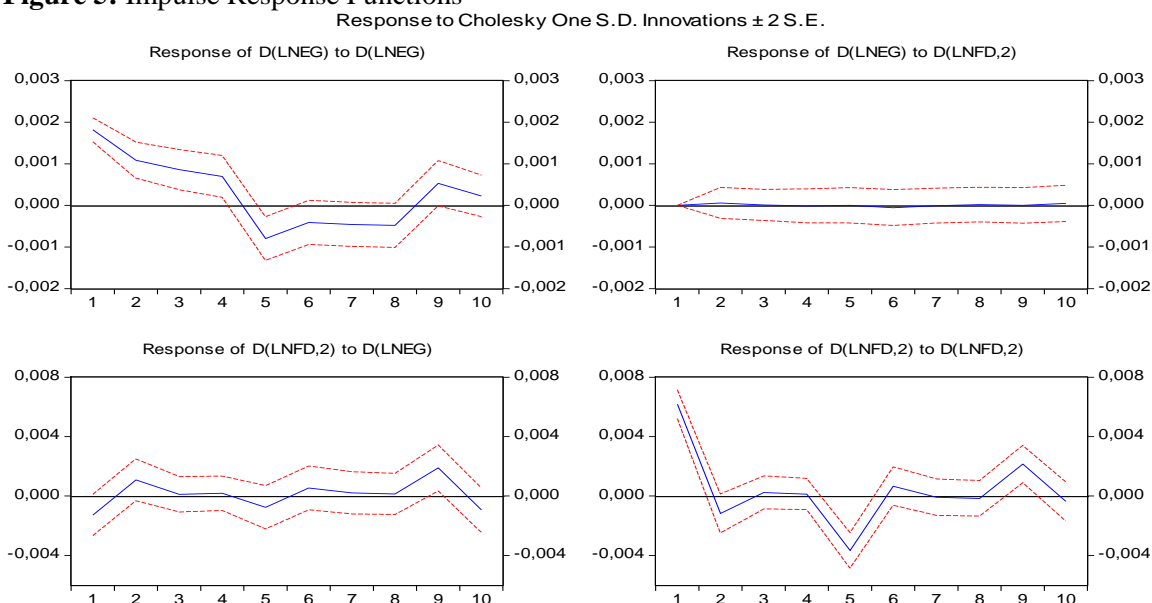
The main purpose of the research is to find the relationship between financial development and economic growth in Namibia. To establish the relationship between the two variables I use the VAR Granger Causality/Block exogeneity Wald tests. The block exogeneity tests results are summarised in Table 5. Since there are only two endogenous variables in the VAR model, this means that there is one endogenous variable and one excluded variable in the block exogeneity tests for both models. In the case where economic growth is the dependent variable and financial development is the excluded variable, the chi-square probability value of the excluded variable is 0.9995 (which is greater than 5%). This means that financial sector development does not Granger cause economic growth. However, where the dependent variable is financial development and the excluded variable is economic growth, the chi-square probability value of the excluded variable is 0.0175 which is less than 5%. This means that economic growth Granger causes financial development.

These above results are vindicated by the impulse response functions in Figure 5 below. Figure 5 shows that a one standard deviation shock to economic growth has a positive impact on economic growth up to the fourth quarter and from the fourth quarter up to the eighth quarter economic growth has a negative impact on itself. After the eighth quarter the impact of economic growth on itself becomes positive again. In the same vein, a one standard deviation shock to financial development shows that it has a positive impact on itself up to the second quarter after which it becomes negative up to the sixth quarter, and then it generally becomes positive again.

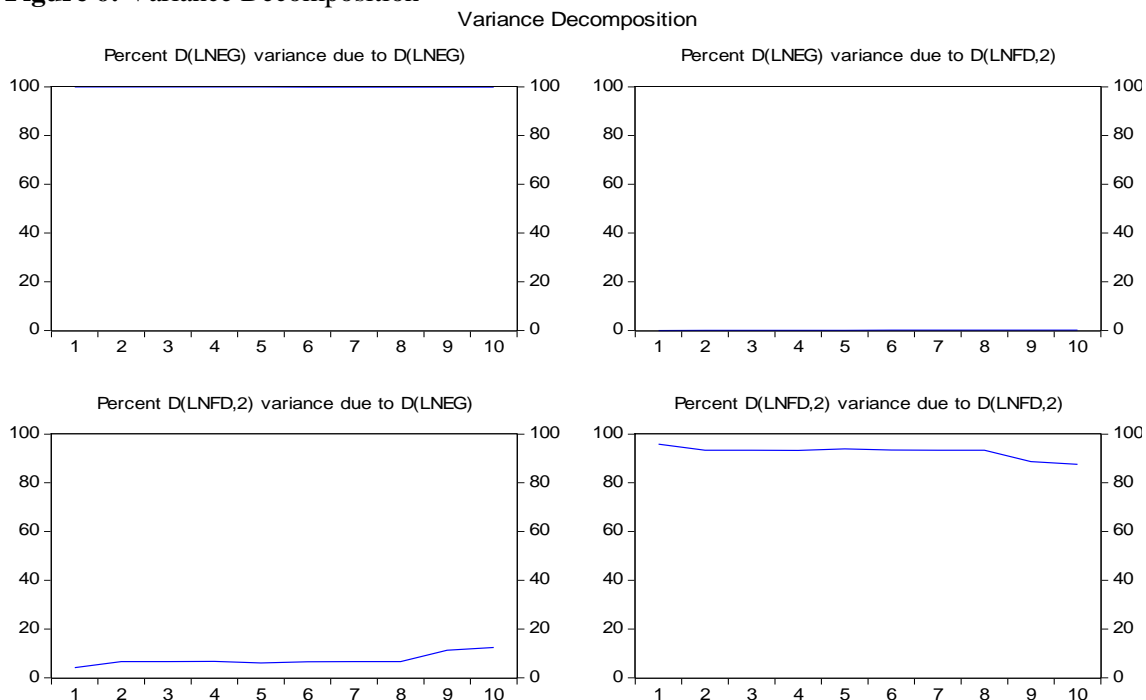
Figure 5 also shows that a one standard deviation shock to financial development does not have a noticeable impact on economic growth and this appears to be in support of the block Granger causality tests which show that financial development does not Granger cause economic growth. Similarly, a one standard deviation shock to economic growth has a positive impact on financial development up to the fourth quarter; and from the fourth quarter up to the middle of the fifth quarter the impact is negative after which it generally becomes positive again. This is also in support of the block exogeneity tests which show that economic growth Granger causes financial development.

Variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR. In other words, variance decomposition provides information about the relative importance of each random innovation in affecting the variation of the variables in the VAR. Figure 6 below further vindicates the results that we found earlier using block Granger causality tests and impulse response functions. As Figure 6 shows the percentage variances of economic growth due to random innovations in economic growth and financial development, is zero. In addition, the percentage variance of financial development due to random innovations to itself approximately ranges between ninety five and eighty eight percent over the ten quarters considered. Furthermore, the percentage variance of financial development due to random innovations to economic growth approximately range between three and ten percent over the ten quarters considered. This further supports the fact that economic growth influences financial development.

**Figure 5: Impulse Response Functions**



**Figure 6:** Variance Decomposition



## 6. Conclusion

This article examines the causal relationship between financial development and economic growth in Namibia since understanding the link is important for designing development strategies. Multivariate causality tests are conducted in the VAR framework with quarterly data from 1990 Q1 to 2011 Q4. The VAR results show that economic growth is explained by the labour force size and all the other variables included in the model are insignificant. The fact that financial variables do not significantly explain economic growth may imply that there is lack of financial depth and competition (as explained above) in Namibia. The results also show that financial development is explained by economic growth only and all the other variables included in the model are insignificant. The block exogeneity Wald tests show that financial development does not Granger cause economic growth, while economic growth Granger causes financial development. Furthermore, the impulse response functions show that a one standard deviation shock to financial development has no impact on economic growth, while a one standard deviation shock to economic growth has an impact on financial development. Furthermore, variance decomposition results show that a random innovation to financial development has no effect on the percentage variance of economic growth, while a random innovation to economic growth has an effect on the percentage variance of financial development.

These results are not surprising given the level of development of the financial services sector for Namibia. As mentioned earlier, the Namibian banking sector has not grown very much in terms of the number of operational banks and their branch networks. Despite this, the economy of Namibia has been growing at an average rate of about 4.4% between 1990 and 2011. The various tests conducted all point to the fact that economic growth Granger causes financial development in Namibia. However, financial development does not Granger cause economic growth. This implies that for the financial services sector to develop in Namibia, the economy needs to grow first.

The article recommends that one way of reforming the financial sector in Namibia is to subject it to some competition through the licensing of new local and foreign banks taking into account the size of the Namibian banking market. This will help increase the volume of lending and possibly reduce the lending rates and service fees as banks compete for customers. Some of the banks, in a competitive environment, may even start to avail funds to small and medium scale enterprises without collateral security; something which is not significantly happening in Namibia in the interim. Despite the fact that financial development does not Granger cause economic growth in Namibia, efforts still need to be made to develop the financial sector and also make it more efficient as this can lead to higher future economic growth rates. This is supported by both theory and empirical studies in both developed and developing countries some of which were cited in this article.

## **7. References**

- Biswas, J., 2008. Does finance lead to economic growth? An empirical analysis of 12 Asian economies. *The Journal of Applied Economic Research*, 2(3), pp.229-46.
- Demetriades, P.O. & Hussein, A.K., 1996. Does financial development cause economic growth? Time series evidence from 16 countries. *Journal of Development Economics*, 51(2), pp.387-411.
- Engle, R.E. & Granger, C.W.J., 1987. Cointegration and error correction: representation, estimation and testing. *Econometrica*, 55(2), pp.251-76.
- Fase, M.M. & Abma, R.C., 2003. Financial environment and economic growth in selected Asian countries. *Journal of Asian Economics*, 14(3), pp.11-21.
- Gelb, A.H., 1989. Financial Policies, Growth and Efficiency. *Policy, Planning and Research Working Paper* no. 202, World Bank, June.
- Granger, C.W.J., 1969. Investigating causal relations by econometric methods and cross-spectral methods. *Econometrica*, 34, pp.424-38.
- Gupta, K.L., 1984. *Finance and Economic Growth in Developing Countries*. London: Croom Helm.
- Hall, S.G. & Milne, A., 1994. The relevance of p-star analysis to U.K. monetary policy. *The Economics Journal*, 104 (No. 424, May).
- Johansen, S. & Juselius, K., 1992. Some structural hypothesis in a multivariate cointegration analysis of purchasing power parity and uncovered interest rate parity for the UK. *Journal of Econometrics*, 53(No. 1-3July-September).
- Johansen, S., 1988. Statistical analysis of cointegrating vectors. *Journal of Economic Dynamics and Control*, 12(2/3June-September).
- Johansen, S., 1992. Estimation and hypothesis testing of cointegrating vectors of Gaussian vector autoregression models. *Econometrica*, 56(No. 6 November).
- King, R.G. & Levine, R., 1993a. Finance and growth: Schumpeter might be right. *Quarterly Journal of Economics*, 108(August), pp.717-37.
- Lanyi, A. & Saracoglu, R., 1983. Interest rate policies in developing countries. *In International Monetary Fund Occasional Paper* Number 22, 1983.
- Liu, X. & Shu, C., 2002. The relationship between financial development and economic growth: evidence from China. *Studies in Economics and Finance*, 20(1), pp.76-84.
- Masoud, N. & Hardaker, G., 2012. The impact of financial development on economic growth: empirical analysis of emerging market countries. *Studies in Economics and Finance*, 20(3), pp.148-73.
- Mishkin, F.S., 2009. *The Economics of Money, Banking and Financial Markets*. Ninth ed. Boston: Pearson.
- Neusser, K. & Kugler, M., 1998. Manufacturing growth and financial development: evidence from OECD countries. *Review of Economics and Statistics*, 37, pp.638-46.

- N'Zue, F.F., 2006. Stock market development and economic growth: evidence from Cote D'Ivoire. The Author. Journal Compilation at African Development Bank. *Published by Blackwell Publishing Ltd*, pp.123-43.
- Padhan, P.C., 2007. The nexus between stock market and economic growth: and empirical analysis from India. *International Journal of Social Economics*, 34(10), pp.741-53.
- Roubini, N. & Sala-i-Martin, X., 1992. Financial repression and economic growth. *Journal of Development Economics*, 39, pp.5-30.
- Rousseau, P.L. & Watchel, P., 2000. Equity market and growth, cross country evidence on timing and outcomes. *Journal of Banking and Finance*, 24(12), pp.1933-57.
- Schumpeter, J.A., 1912. *The Theory of Economic Development: Dicker and Humblot*. Translated by Redvers Opie, Harvard University Press, Cambridge, MA.
- Sims, C.A., 1972. Money income and causality. *American Economic Review*, 62, pp.540-52.
- Sims, C.A., Stock, J.H. & Watson, M.V., 1990. Inference in linear time series models with some unit roots. *Econometrica*, 58(1), pp.113-44.
- Sunde, T., 2010. Financial development and economic growth in Namibia. *Journal of Emerging Trends in Economics and Management Sciences*, 1(2), pp.76-80.
- Sunde, T., 2012. Financial sector development and economic growth nexus in South Africa. *International Journal of Monetary Economics and Finance*, 5(1), pp.64-75.
- Toda, H.Y. & Phillips, P.C.B., 1993. Vector autoregression and causality. *Econometrica*, 61, pp.1367-93.
- Wachtel, P., 2003. How much do we really know about growth and finance? *Federal Reserve Bank of Atlanta Economic Review*, pp.33-47.
- Zachariadis, T., 2006. On the exploration of the causal relationship between energy and the economy. *Discussion paper* Number 2006-05.
- Ziramba, E. & Kavezeri, K., 2012. Long run price and income elasticities of Namibian aggregate electricity demand: results from the bounds testing approach. *Journal of Emerging Trends in Economics and Management Sciences*, 3(3), pp.203-09.