Journal of Applied Finance & Banking, vol. 4, no. 3, 2014, 151-165
ISSN: 1792-6580 (print version), 1792-6599 (online)
Scienpress Ltd, 2014

Economic Growth, Financial Depth and Savings Nexus in Saudi Arabia: An Empirical Investigation

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Abstract

This research article empirically examines the causal relationship among financial depth, economic growth and savings in the unique economic setup of Saudi Arabia for the period of 1971 to 2011. The study intends to determine the directions of causality between financial depth and economic growth and its effect on each other, where savings is introduced to the model in order to observe the relationship in a tri variable framework. Although Johansen and Jueslius test for co-integration found no long run co-integrated equations among the variables but the Granger Causality and Wald Test establishes the relationships among the variables using Vector Auto Regression (VAR) model. Outcomes of the study imply that both saving and financial depth causes economic growth in Saudi Arabia, whereas there is a unidirectional causality between financial depth and saving. The findings are further validated by Impulse response Function and Vector Decomposition analysis. The results show that financial depth is an important component to consider which triggers both, savings and economic growth in the country. The outcomes of the study are in agreement with the government efforts to strengthen the financial base of the economy in order to reduce its dependency on oil.

JEL classification numbers: E21, G10, O16, C33
Keywords: Saudi Arabia, Savings, Financial depth, Economic growth, VAR

1 Introduction

There has been extensive research work done on the topic of economic growth and financial development since the start of 20th century. Most of the studies revealed the significance of financial development for the economic growth of the countries all over the world. Some of the contemporary research conducted on the various regions advocates that the financial

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Article Info: *Received :* March 10, 2014. *Revised :* March 31, 2014.
Published online : May 1, 2014

depth can induce economic growth and benefits. This research study got the motivation primarily from the work of Odhiambo (2008), in which the author established a causal linkage among financial depth, savings and economic growth in Kenya. The author has used savings as an intermitting variable to examine the dynamic causal relationship between Economic growth and financial deepening. Although many studies have focused the developing countries to explore relationships between growth and financial development but there are very few studies available with respect to the Oil based nations of Middle Eastern region. The Saudi Arabian economy has some unique features that distinguish it from the other countries. It is an oil based economy where 92% of GDP is generated from the oil exports. The country is the world's biggest producer and exporter of Oil and it channels 50% of its oil exports to the world biggest economy of U.S.A. With a global shift in economic scenario from the start of this century where European union has emerged as a strong competitor and America is rapidly developing its own Oil based resources to achieve self-sufficiency in the Black gold, the Saudi Government is trying hard to change the country's basic setup from Oil to Knowledge based economy where there is less dependency on oil revenue in the coming decades. The area that has been keenly focused by the authorities is the financial sector of the country through establishing a sound base for financial institutions. King Abdullah financial city is one of the biggest projects undertaken to develop the financial capability of the country in this region. There is an emerging tendency on the part of the financial sector to introduce innovative financial products trying to increase their economic contribution.

Although there are extensive research studies on determining the causal relationship between economic growth and financial depth but less is done in the distinctive settings of Saudi Arabia. Mahran (2012) found negative relationship between economic growth and financial development in the country. Furthermore most of the research studies conducted in the area relies on limited framework in which only two variables are used to determine the causal relationship. With the fluctuating prices of oil in last 40 years, the Saudi Arabian economy is facing the phenomena of proportionate outcomes in terms of overall income and saving. The saving is an important factor which can be used as an intermitting variable because that can influence both economic growth and financial depth as evident from the work of Odhiambo (2008). This research work tries to establish the relationship among economic growth, financial depth and savings. The real GDP per Capita is taken as the proxy for Economic Growth, while Broad Money as a percentage of GDP (M2/GDP) is representing the financial depth of the country. Saving is taken as the percentage of GDP.

2 Literature Review

The relationship between financial development and economic growth is an important matter of discussion in economic literature. Ever since the revolutionary contributions of Schumpeter (1911), the researchers like Patrick(1966), Goldsmith (1969), MacKinnon (1973) and Shaw (1973) explored diverse aspects of this relationship. There is an extensive work available in both theoretical and empirical dimensions including single-country and cross-nations with cross-sectional, time-series and panel techniques applied to ascertain such relationship. This study has used real Gross Domestic Product (GDP) per capita as a standard proxy measure of economic growth which is an extensively used indicator of economic growth. King and Levine (1993), Levine et al (2000), Jalil and Ma (2008) ,

Kilimani (2009) and many other researchers have used GDP as a proxy for economic growth.

After exploring the relevant literature on economic growth and financial depth one can find the empirical evidence that economies with developed financial system are supposed to grow faster, while financial depth stimulates the economic growth in less developed regions as well (Beck, 2008; Baltagi et al., 2009).To many researchers like Greenwood and Jovanovich (1990) and Bencivenga and Smith (1991), financial development is necessary for economic growth. Several recent researches stress that financial development is an important factor for nurturing long-run economic growth due to the fact that it is able to speed up overall economic growth by promoting efficient allocation of resources, increasing the capital accumulation and innovation (Ang, 2008; Abu-Bader and Abu-Qarn, 2008; Levine, 2005).

At the same time, it is quite difficult to examine various facets of the finance-growth relationship due to the fact that investigating the correlations between them is mostly used in majority of cross-country researches that can lead to false estimations because of number of constraints intrinsic in the cross sectional analysis. Another important issue is that the correlations disclose nothing about causation and its directions. On the other hand, most of the contemporary time-series research has applied the bi-variate causality tests between indicators of financial depth and economic growth (e.g., Bell & Rousseau, 2001;Demetriades & Hussein, 1996). They have also suffered from the issue of omitted variables that can lead to flawed causal interpretations. And the reason behind that is the omission of key variables which can affect the relationship among the variables under study i.e. financial depth and economic growth exclude other critical growth elements from the study and it is possible that model is not proper and could generate unreliable results and false interpretations. There are some studies that use multivariate causality test in the investigation of financial depth and economic growth nexus like Luintel and Khan (1999) approach in which they ascertain the relationship hypothetically between financial development and economic growth based on multivariate Vector Auto Regression(VAR) model, a framework which provided the base for analysis in this study as well.

In most of the cases the relationship between savings and economic growth has been studied using contemporary correlation and dynamic approach models. Many researchers have applied Ordinary Least Squares (OLS) regression analysis on cross-section data to ascertain that relationship and concluded that a more savings (ratio of savings to GDP) led to higher economic growth (Bacha, 1990; Otani and Villanueva 1990; DeGregorio 1992; and Jappelli and Pagano 1994; Jalil and Ma, 2008). A work by Krieckhaus (2002) found that a higher level of savings lead to higher investment level which consequently stimulate economic growth in countries. There are many reasons for the existence of such a relationship because financial system development can decrease the cost of attaining information, it can enhance resource allocation and accelerate economic growth (Ahmed and Malik, 2009).

Contemporary research shows that development of the real sector can also promote the development of the financial sector. Many studies have concluded that the direction of causality may be responsive to the choice of proxy for financial depth irrespective of the methodology used for examining the relationship. It has been also been found that the precision of the causality between the two variables may vary from region and also time centric. Present day empirical findings have shown that the causality between financial depth and economic growth could be influenced by the exclusion of a third key variable that

affecting the economic growth and financial development in the model under consideration (Park and Rhee, 2005). According to the researchers few variables which are important in determining the finance-growth relationship include the degree of trade openness, savings, inflation and capital formation. this study have selected savings as an alternating variable in order to develop causality framework with three variables as strong links can be observed in the existing literature between Savings and Economic Growth. The relationship between Savings and financial depth is another topic of interest in the literature. There are some long-established theories which assert that the higher saving ratio flourish the economy by increasing the rate of GDP (Romer, 1986 Lucas, 1988). Same relationship has been established in the short run in some of the recent studies researchers (Odhiambo, 2007). In a contrary work Loayze et al. (2000) established that that financial depth does depend on national savings for a sample of 20 developed and 40 developing countries around the world. This specific research is conducted in the distinctive settings of Saudi Arabia, an economy with high oil dependency and strong financial regulations. The savings in the country also fluctuates with the change in oil prices overtime, so it is interesting to see the tri-variate relationship in such a setup with unique characteristics

Many studies determined the dynamic relationship of savings and economic growth by using the concept of Granger causality to determine its direction as well. Caroll and Weil (1994) found that economic growth rate Granger caused savings in a study with a larger sample of 32 countries. Sinha and Sinha (1998) did alike study in the Mexico and determines causal relationship from economic growth to savings. In another work Anoruo and Ahmad (2001) examined the causality of savings and economic growth in seven African nations and found that in four countries, economic growth Granger causes the growth rate of savings. Mavrotas and Kelly (2001) used the Toda and Yamamoto method to test for Granger and found no causality between growth and savings in India, though it was not the case of Srilanka where bi-directional causality was established.

3 Methodology and Analysis

3.1 ADF Test of Unit Root.

The unit root tests are important in identifying the stationary trend of a time series data. It is vital to apply unit root test in order to avoid specious results as non-stationary data invalidate the normal statistical tests. This research applied two tests of unit root data which is the Augmented Dickey-Fuller test (ADF) and the Phillips- Perron (PP) tests to observe the integrated order and stationary behaviour of data.

Basic equation of ADF with constant and trend is as under.

$$\Delta X_{t} = \lambda_0 + \lambda_{1t} + \lambda_2 x_{t-1} + \sum_{i=1}^{n-1} \lambda i \Delta X_{t-1} + \mathcal{E}_t \qquad i=1, 2, 3,\ldots,n$$

In the above mentioned equation ΔX_t is a macroeconomic variable in a time period t and λ_0 is a constant term while $\Delta X_t = X_t - X_{t-1}$wheret is a trend variable and ε_t is white noise error term.

The Null and Alternative hypothesis are given as under,

H_0: $\lambda_2 = 0$ Data is Non Stationary

H_1: $\lambda_2 < 0$Data is Stationary

The H_0 hypothesis states that data has a unit root or that data is non stationary and H_1 hypothesis states that data do not contain a unit root so data is stationary. In the unit root tests t-statistics and p- values are calculated and matched with critical values at levels and first at the first difference. If the results show that critical values are more than t-value at levels we cannot reject the null hypothesis and the data is non- stationary. While at first difference if the t-value is greater than the critical values we reject null hypothesis that data is stationary.

3.2 Phillips-Perron (PP) Test

The study applied Phillips and Perron (1988) test for non-parametric unit root. This test is considered more refined in a way that it adjusts the problems of serial correlation and heteroscedasticity. One important improvement of this test over ADF is that it does not consider lag length. The equation for PP test is as under while the hypothesis for both PP and ADF are same,

$$\Delta Y_t = \theta Y_{t-1} + \beta + u_t$$

Where Δ signifies the first difference operator.
Table 1 and 2 displays the results of unit root test specifying that at levels null hypothesis of no unit root cannot be rejected because the value of t-statistics is less than the critical value in both ADF and PP tests. This is not true for first difference, where the t-vale is more than the critical values so the null hypothesis is rejected at the first difference. Therefore all the variables are non-stationary at level and Stationary at first difference with the order of I(1).

Table 1: ADF test

Variables	**At level**				**At first deference**			
	With constant		**With constant and linear trend**		**With constant**		**With constant and linear trend**	
	t-stat	C-VALUE	t-stat	C-VALUE	t-stat	C-VALUE	t-stat	C- VALUE
ECOG	0.13547	-3.605	-0.541	-4.205	-4.6089	-3.610	-3.485	- 4.2191
FD	-1.5638	-3.605	-1.735	-4.205	-5.9520	-3.610	-5.96	-4.21186
SAV	-1.5164	-3.605	-1.25	-4.205	-6.889	-3.610	-7.1536	- 4.21186

Table 2: PP test

VARIABLES	**At level**				**At first deference**			
	With trend		**With trend and intercept**		**With trend**		**With trend and intercept**	
	t-stat	C-VALUE	t-stat	C-VALUE	t-stat	C-VALUE	t-stat	C- VALUE
ECOG	-0.1230	-3.605	-0.9496	-4.2050	-4.575	-3.6104	-4.6434	- 4.2118
FD	-1.5475	-3.605	-1.8042	-4.2050	-5.935	-3.6104	-6.003	- 4.2118
SAV	-1.4353	-3.605	-1.1146	-4.2050	-6.894	-3.6104	-7.9149	- 4.2118

3.3 Test for Co-integration

As the econometric analysis suggests, when the concern of unit root has been addressed, the co-integration test can be applied to verify the existence of long run relationship. The theory of co-integration defines that even though the variables under consideration are non-stationary at individual level but the linear relationship among them may still be stationary. The study has used multivariate co-integration method developed by Johansen and Jueslius (1990). This technique observes the long run relationship among the non-stationary variables while showing number of co-integrating equations.

Table 3 presents the outcome of Johansen co-integration tests. There is no co-integrated equation that shows the absence of long run relationship among the variables. This is also evident from the Trace test and Max-Eigen values. The p- values for both are also insignificant, that means Vector Error Correction Model (VECM) is not applicable.

Table 3: Johansen co-integration test

Trace test					Max-Eigen			
No. of CE(s)	Eigenvalue	Statistic	0.05 Critical Value	Prob.**	Eigenvalue	Statistic	Critical Value	Prob.**
None	0.291031	22.31402	29.79707	0.2814	0.291031	13.41377	21.13162	0.4149
At most 1	0.202555	8.900247	15.49471	0.3747	0.202555	8.827378	14.26460	0.3008
At most 2	0.001867	0.072869	3.841466	0.7872	0.001867	0.072869	3.841466	0.7872

Trace test indicates no cointegration at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

3.4 Unrestricted Vector Auto-regression (VAR)

Vector auto regression (VAR) is an econometric model that is utilized for the understanding of the linear relationships among variables with multiple time series. Models included in VAR simplify the autoregression models by allowing the impact for more than one changing variable on relevant time series data. The variables in a VAR are used

proportionally in an operational sense, despite the projected quantitative coefficients may not be the same generally, the model treats all variables as endogenous therefore one separate equation is generated for each variable under study. Every equation contains lagged values of all the variables as dependent variables including the dependent variable itself. The basic equations used for reduced VAR is as under:

$$GDP_{t,1} = \alpha_1 + \varphi_{11}GDP_{t-1,1} + \varphi_{12}SAV_{t-1,2} + \varphi_{13}FD_{t-1,3} + w_{t,1}$$
$$SAV_{t,2} = \alpha_2 + \varphi_{21}SAV_{t-1,1} + \varphi_{22}GDP_{t-1,2} + \varphi_{23}FD_{t-1,3} + w_{t,2}$$
$$FD_{t,3} = \alpha_3 + \varphi_{31}FD_{t-1,1} + \varphi_{32}GDP_{t-1,2} + \varphi_{33}SAV_{t-1,3} + w_{t,3}$$

As the Johansen test results does not depict any significant co-integrating equation so one can apply the Unrestricted Vector Auto-regression (VAR) to find further relationships. The table (4) shows results of VAR, where one can observe many significant values of coefficients, that establish there may exist a relationship among the variable under consideration. The values of coefficients of economic growth, financial depth and savings with lag 1 significantly affect economic growth while the value of intercept in the equation is also significant when financial depth is taken as dependent variable in VAR system the lagged GDP, Financial depth have significant coefficient values while savings does not affect the financial depth. The constant is not significant as well. In the next relationship where saving is taken as dependent variable the coefficients of all independent variables are significant while the constant is not. As this test does not specifically interpret the direction of causality, the study has applied the granger causality in order to observe their relationship with better understanding and directions.

If the values of the related coefficients are substituted the above mentioned equation after running the VAR analysis one can obtained the following equations as can be observed from table 4 for VAR estimation.

*GDP = 0.872661522789*GDP (-1) + 261.693832273*SAV (-1) + 25018.9482071*FD (-1) - 11683.9560695*

*SAV = - 0.0002083142307*GDP (-1) + 1.0800452597*SAV (-1) + 24.8681237838*FD (-1) - 4.82567293471*

*FD = 1.36953556633e-06*GDP (-1) - 0.00101022447281*SAV (-1) + 0.812601743224*FD (-1) + 0.0664026853095*

Table 4:Vector Auto regression Estimates
Included observations: 40 after adjustments
Standard errors in ( ) & t-statistics in [ ]

	GDP	SAV	FD
GDP(-1)	0.872662	-0.000208	1.37E-06
	(0.08287)	(9.7E-05)	(6.2E-07)
	[10.5307]	[-2.15058]	[2.20445]
SAV(-1)	261.6938	1.080045	-0.001010
	(96.6648)	(0.11299)	(0.00072)
	[2.70723]	[9.55867]	[-1.39401]
FD(-1)	25018.95	24.86812	0.812602
	(10391.6)	(12.1468)	(0.07791)
	[2.40760]	[2.04731]	[10.4306]
C	-11683.96	-4.825673	0.066403
	(5554.93)	(6.49314)	(0.04165)
	[-2.10335]	[-0.74320]	[1.59449]
R-squared	0.872308	0.814306	0.911397
Adj. R-squared	0.861667	0.798832	0.904014
F-statistic	81.97602	52.62261	123.4363

3.5 The Selection of Lag length:

As the VAR model is sensitive to lag length so the study has used lag length selection criteria to get the best possible lag length. The results of various selection criteria are given in the table 5, Where the optimal lag suitable for the model is lag order 1 as recommended by almost all of the selection methods.

Table 5: Lag selection criteria

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-544.8388	NA	6.68e+08	28.83362	28.96291	28.87962
1	-408.9597	243.1520*	842807.2*	22.15578*	22.67291*	22.33977*
2	-405.7538	5.230730	1155286.	22.46073	23.36571	22.78271
3	-399.4645	9.268512	1366556.	22.60339	23.89622	23.06337

*indicates lag order selected by the criterion LR: sequential modified LR test statistic (each test at 5% level) FPE: Final prediction error AIC: Akaike information criterion SC: Schwarz information criterion Trace test indicates no cointegration at the 0.05 level * denotes rejection of the hypothesis at the 0.05 level **MacKinnon-Haug-Michelis (1999) p-values

3.6 Granger Causality Test

Granger Causality test is widely used by researchers to determine the causal relationship among the variables. This test has other advantages that it also specifies the direction of the causality. Granger Causality can be shown by considering the following equation.

$$GDP_t = \alpha_0 + \sum_{i=1}^{m} \alpha_{1i} GDP_{t-i} + \sum_{i=1}^{n} \alpha_{2i} SAV_{t-i} + \sum_{i=1}^{n} \alpha_{3i} FD_{t-i} + \alpha_4 ECT_{t-1} + \emptyset_t$$

$$SAV_t = \beta_0 + \sum_{i=1}^{m} \beta_{1i} GDP_{t-i} + \sum_{i=1}^{n} \beta_{2i} SAV_{t-i} + \sum_{i=1}^{n} \alpha_{3i} FD_{t-i} + \beta_4 ECT_{t-1} + \theta_t$$

$$FD_t = \psi_0 + \sum_{i=1}^{m} \psi_{1i} GDP_{t-i} + \sum_{i=1}^{n} \psi_{2i} SAV_{t-i} + \sum_{i=1}^{n} \psi_{3i} FD_{t-i} + \psi_4 ECT_{t-1} + \pi_t$$

In the above model GDP represent economic growth, FD is financial depth and SAV is savings, ECT_{t-1} is error correction term at lag one while $\emptyset$, θ and π are white noise residuals.

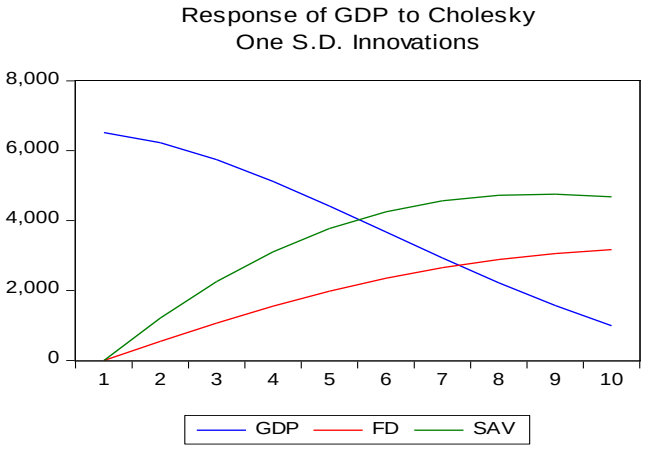
The results of Granger Causality test shows multiple causal relationships exist among the variables under consideration. The Financial Depth and Economic growth have bi-directional Causality where both can Cause each other that is depicted by the significant values of Granger test. This is also true for Savings and Economic growth where both variables are causing each other as well. While there also exists a unidirectional causality from financial depth to savings. All of the existing causality is true at 5% level of significance. The outcomes of Granger causality/exogenity Wald test shows there exists a short term causal relationship among the variable under consideration.

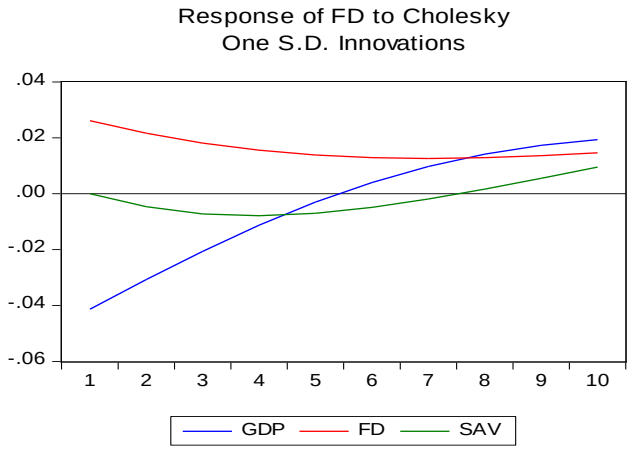
Table 6: VAR Granger Causality/Block Erogeneity Wald Tests

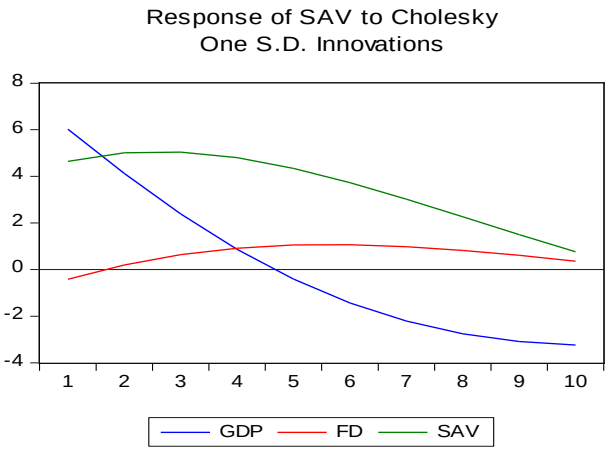
Dependent variable	GDP	SAV	FD	DIRECTION
GDP		1.943257 (0.0068)	5.796560 (0.0161)	SAV→GDP FD→GDP
SAV	4.624978 (0.0315)		4.191461 (0.0406)	GDP →SAV FD→SAV
FD	4.859618 (0.0275)	1.943257 (0.1633)		GDP→FD

3.7 The Impulse Response Function

A shock to the given variable does not only affect itself but also communicate this effect to all other endogenous variables via the lag structure of the VAR in a model. An impulse response function hints the influence of a one-time shock to one of the variations on present and future values of the endogenous variables under consideration. The study has obtained the impulse response function graphs by using e-views software. The following figures depict the outcome of impulse, response on each variable in the form of 3x3 graphs.







The graphs show how the GDP (economic growth) respond to a shock to the variables GDP, Financial depth and savings. The response of a shock to GDP is a negative change in GDP while Financial Depth and savings reaction to the shock is initially positive but become stable overtime. The effect of shock for Financial Depth to itself and Savings is

stable while the response to GDP is positive. For a shock to Savings the response to itself and GDP is negative and it is stable in the case of Financial Depth.

3.8 Variance Decomposition Method

Variance decomposition is the technique that provides an alternative method of representing the system dynamics. While the Impulse response functions depicts the effects of a shock to endogenous variable on the variables in the VAR environment , variance decomposition actually decomposes the change or variation in an endogenous variable into the component shocks with respect to the endogenous variables in the system. The variance decomposition has its relevant importance as it provides the information about every specific random innovation to the variables in the model.

Variance decomposition of variables

Table 7: GDP

Period	S.E.	GDP	SAV	FD
1	6514.932	100.0000	0.000000	0.000000
2	9110.758	97.86709	1.624108	0.508798
3	11055.80	93.46256	4.884298	1.653145
4	12670.38	87.51095	9.160639	3.328407
5	14078.04	80.72844	13.87930	5.392257
6	15338.77	73.73457	18.57328	7.692151
7	16484.00	67.00240	22.91013	10.08747
8	17530.37	60.84592	26.69076	12.46331
9	18486.48	55.43497	29.82904	14.73599
10	19356.87	50.82510	32.32276	16.85214

Table 8: SAV

Period	S.E.	GDP	SAV	FD
1	7.615288	62.54788	37.45212	0.000000
2	10.00717	53.17698	46.40636	0.416658
3	11.47641	44.76684	54.01894	1.214222
4	12.50375	38.19849	59.62447	2.177033
5	13.28387	33.93737	62.96156	3.101075
6	13.91281	32.00157	64.16098	3.837445
7	14.44168	32.05297	63.63464	4.312395
8	14.89913	33.54793	61.92823	4.523836
9	15.30254	35.88523	59.59185	4.522925
10	15.66373	38.51571	57.09366	4.390637

Table 9: FD

Period	S.E.	GDP	SAV	FD
1	0.048842	71.48749	0.229359	28.28315
2	0.061793	69.37524	1.287133	29.33762
3	0.067989	66.48322	2.740925	30.77586
4	0.071084	63.33869	4.193375	32.46793
5	0.072814	60.53773	5.264163	34.19811
6	0.074214	58.56531	5.728501	35.70619
7	0.075927	57.59339	5.634061	36.77255
8	0.078319	57.39493	5.298869	37.30620
9	0.081543	57.46243	5.162587	37.37498
10	0.085600	57.25695	5.586543	37.15651

From the results presented in tables (7, 8, 9) it is appropriate to argue that nearly 32% of GDP can be explained by the effects of savings while it is only 5% in the case of Financial Depth it is almost 16%. At the other hand 38% of Savings can be explained by the changes in GDP and it is only explained up to 4% in response to Financial Depth. While the Financial depth is determined up to 57% by the effects of GDP and it is only 5% in the case of Savings. The results corroborate the outcomes of Impulse-Response function that there exists mutual relationship among the variables

4 Conclusion

This study explains the nexus among saving, financial depth and economic growth in the oil dependent economy of Saudi Arabia for the period 1971-2011 by employing tri-variate casualty model. The study is unique as92% of the GDP comes from oil exports so it is motivating to see the relationships among Financial Depth, saving and economic growth in this distinctive system. The results of Johansen co-integration test shows that there is no long run co-integration among financial depth, economic growth and saving. VAR model is employed to see the nexus and the outcome shows that there exist relationship among Financial Depth, saving and economic growth. The results of Granger causality also shows that both economic growth and financial depth causes each other supporting the bi-directional argument. And so as the saving and economic growth which implies that both saving and financial depth causes economic growth in Saudi Arabia. This finding is contrary to the finding of Odhiambo (2008), which states that neither financial depth nor saving causes economic growth. There is a unidirectional causality between financial depth and saving that is from financial depth to saving, meaning saving does not causes financial development which is again contrary to previous findings. The study uses Impulse-Response function to see the effects of shock to the given variable and all other endogenous variables via the lag structure in the VAR model. The results show that the response of a shock to economic growth to itself is negative while Financial Depth and savings reaction to the shock is initially positive but become stable overtime. The effect of shock for Financial Depth to itself and Savings is stable while the response to GDP is positive. For a shock to Savings the response to itself and GDP is negative and it is stable in the case of Financial Depth. The results of Variance decomposition shows that nearly 32% of GDP can be explained by the effects of savings while it is only 5% in the case of

financial depth. On the other hand 38% of Savings can be explained by the changes in GDP and it is only explained up to 4% in response to changes in Financial Depth. While the Financial depth is determined up to 57% by the effects of GDP and it is only 5% in the case of Savings.

Overall results show that financial depth is important component to consider which triggers both, savings and Economic growth in the country which seconds the government efforts to strengthen the financial base, while the dependency on oil is still a key factor economic growth.

More sophisticated proxies for financial depth are not being incorporated in this study due to limited availability of time series data for the years under consideration. Further variables such as FDI, Stock market performance, education, energy and poverty indicators can be inculcated in the future research to determine the short and long run nexus on a broader scale. Comparative studies of other oil exporting nations may bear significant outcomes for future research activities.

ACKNOWLEDGEMENTS: The authors would like to thank the Deanship of Scientific Research at King Saud University represented by the Research Center at CBA for supporting this research financially.

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