

Nicholas M. Odhiambo¹

INTEREST RATE REFORMS, SAVINGS AND ECONOMIC GROWTH: EMPIRICAL EVIDENCE FROM SOUTH AFRICA²

This study takes a fresh look at the dynamic relationship between interest rate liberalisation, savings and economic growth in South Africa. The study attempts to answer 2 critical questions: i) Does interest rate liberalisation Granger-cause savings in South Africa? ii) Do savings that result from interest rate liberalisation Granger-cause economic growth? The interest rate liberalisation in this study is proxied by the flexible deposit interest rate. Using the recently introduced ARDL-bounds testing approach, the study finds a unidirectional causal flow from interest rate liberalisation to gross domestic savings. The results also show a unidirectional causal flow from interest rate liberalisation to economic growth. The study, however, fails to find any causal flow from savings to economic growth. This shows that, while interest rate liberalization (proxied by the flexible deposit interest rate) Granger-causes savings, the savings that result from interest rate liberalisation do not Granger-cause economic growth. This finding is not surprising - given the low level of savings experienced in South Africa over the last few years.

JEL Classifications: C20, E42, G20, E00.

Keywords: Africa, South Africa, interest rate dynamics, savings economic growth.

Ніколас М. Одіамбо

РЕФОРМИ ПРОЦЕНТНОЇ СТАВКИ, ЗАОЩАДЖЕННЯ І ЕКОНОМІЧНЕ ЗРОСТАННЯ: ЕМПІРИЧНІ ДАНІ ЩОДО ЮАР

У статті представлено новий погляд на динамічний взаємозв'язок між лібералізацією процентних ставок, заощадженнями і економічним зростанням у Південній Африці. Автор відповів на такі питання: I) Чи впливає лібералізація процентних ставок на зростання заощаджень у Південній Африці? II) Чи впливає рівень заощаджень, які є результатом лібералізації процентних ставок, на економічне зростання? Лібералізація процентних ставок в цьому дослідженні виведена за гнучкою процентною ставкою по депозиту. Використовуючи метод авторегресивного розподіленого лагу, доведено, що існує причинна однонаправлена залежність валових внутрішніх заощаджень від лібералізації процентної ставки. Результати також показали, що існує причинна однонаправлена залежність економічного зростання від лібералізації процентних ставок, але залежності економічного зростання від заощаджень не виявлено. Це показує, що лібералізація процентних ставок впливає на рівень заощаджень, але заощадження, які є результатом лібералізації процентних ставок, не впливають на економічне зростання. Цей висновок передбачуваний, враховуючи низький рівень заощаджень у Південній Африці протягом останніх декількох років.

Ключові слова: Африка, Південна Африка, динаміка процентних ставок, заощадження, економічне зростання.

Таб. 4. Рис. 3. Літ. 22.

Ніколас М. Одіамбо

РЕФОРМЫ ПРОЦЕНТНОЙ СТАВКИ, СБЕРЕЖЕНИЯ И ЭКОНОМИЧЕСКИЙ РОСТ: ЭМПИРИЧЕСКИЕ ДАННЫЕ ПО ЮАР

¹ University of South Africa, Pretoria, South Africa.

² The author wishes to acknowledge the financial support from the Organisation for Social Science Research in Eastern and Southern Africa (OSSREA) - for the initial phase of this project. The usual disclaimer applies.

В статье представлен новый взгляд на динамическую взаимосвязь между либерализацией процентных ставок, сбережениями и экономическим ростом в Южной Африке. Автор отвечает на такие вопросы: I) Влияет ли либерализация процентных ставок на рост сбережений в Южной Африке? II) Влияет ли уровень сбережений, которые являются результатом либерализации процентных ставок, на экономический рост? Либерализация процентных ставок в этом исследовании выведена по гибкой процентной ставке по депозиту. Используя метод авторегрессивного распределенного лага, доказано, что существует причинная однонаправленная зависимость валовых внутренних сбережений от либерализации процентной ставки. Результаты также показали, что существует причинная однонаправленная зависимость экономического роста от либерализации процентных ставок, но зависимости экономического роста от сбережений не выявлено. Это показывает, что либерализация процентных ставок влияет на уровень сбережений, но сбережения, которые являются результатом либерализации процентных ставок, не влияют на экономический рост. Этот вывод предсказуем, учитывая низкий уровень сбережений в Южной Африке в течение последних нескольких лет.

Ключевые слова: Африка, Южная Африка, динамика процентных ставок, сбережения, экономический рост.

1. Introduction. South Africa was one of the first developing countries to implement interest rate liberalisation in 1980. The rationale for this rapid interest rate liberalisation was to allow banks greater flexibility and to encourage competition. Unfortunately, South African experience of interest rate liberalisation, just as in other developing countries, has been mixed. Following the liberalisation of interest rates, many countries suffered sharp increases in interest rates, worsening inflation, unstable exchange rates and declining savings and investment rates. In some instances, there has been a widespread belief that the original theory of financial liberalisation, which was even supported by the Breton Woods institutions, was oversold to many developing countries. In particular, South Africa had to learn some lessons the hard way from rapid financial liberalisation. After being one of the first developing countries to liberalise its interest rates in 1980, South Africa had to tighten its capital control in 1985 in response to capital flights, following the worldwide imposition of economic sanctions against the country. Previous studies on this topic have concentrated mainly on Asia and Latin America, affording sub-Saharan African (SSA) countries either very little coverage or none at all. Even where such studies have been undertaken, findings on the role played by high interest rates and their effect on financial deepening and economic growth are at best inconclusive. Previous empirical studies on this subject suffer from 3 major limitations. First, the majority of the previous studies on this subject have attempted to examine the direct relationship between interest rate reforms and economic growth. Yet, it is now becoming clear that the relationship between interest rate reforms and economic growth is an indirect one. Interest rate liberalisation impacts on economic growth inter alia through its influence on savings. Secondly, the majority of previous studies have concentrated mainly on the use of a bivariate causality test to examine the causal relationship between financial development and economic growth and may, therefore, suffer from the omission-of-variable bias. Thirdly, some previous studies have relied on the cross-sectional data to examine the relationship between interest rate reforms and eco-

conomic growth. Yet, it is now clear that the cross-sectional method of lumping together data on the countries that are at different stages of financial and economic development, may not satisfactorily address the country-specific effects.

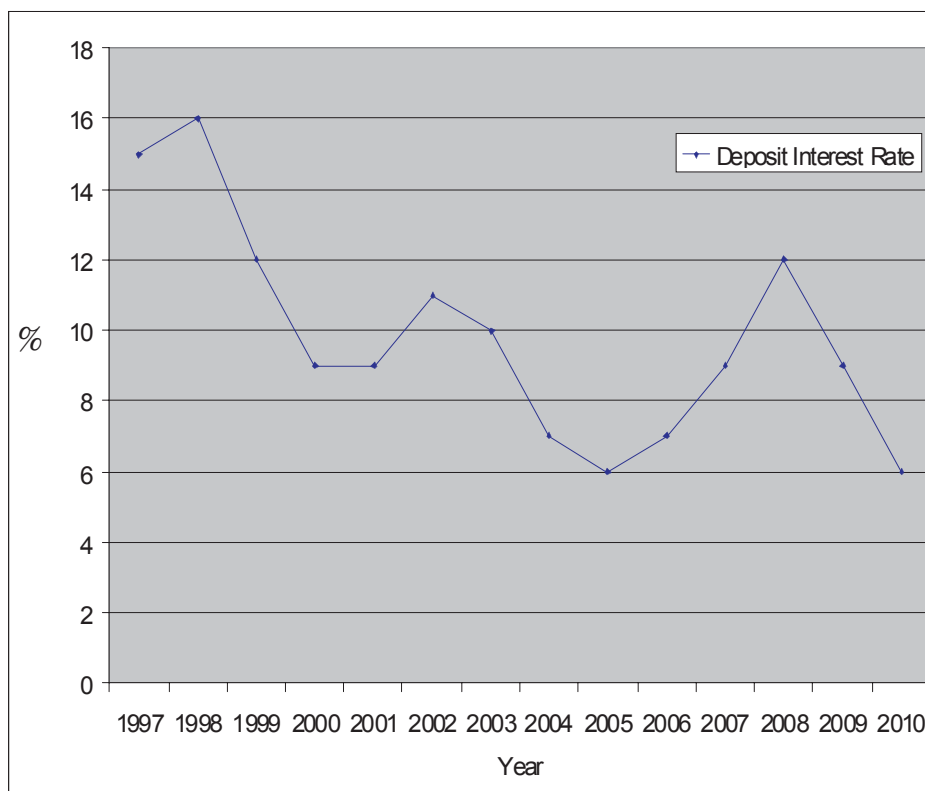
The current study, therefore, attempts to fill this lacuna by examining the direction of the inter-temporal causality between interest rate liberalisation, savings and economic growth — using the recently introduced ARDL-bounds testing approach. The remainder of the paper is organized as follows: Section 2 traces the origin of interest rate liberalisation in South Africa. Section 3 sketches the relationship between interest rate liberalisation and economic growth. Estimation techniques and empirical results are presented in Section 4; while Section 5 concludes the study.

2. Interest Rate liberalisation in South Africa. The liberalisation of interest rates in South Africa was initiated in 1980, shortly after the De Kock Commission Report of 1978. During the 1960s and 1970s the South African interest rates, just like other financial prices, were quantitatively controlled. The rationale for this rapid interest rate liberalisation was to allow banks greater flexibility and to encourage competition. However, South Africa like other developing countries, adopted a rather rapid approach to financial liberalisation, with reversal in some instances. The preconditions necessary for the implementation of financial liberalisation, such as macroeconomic stability, prudential regulations, timing of the policy and the speed and sequencing issues were not closely observed. For instance, the liberalisation of interest rates should begin with inter-bank market rate liberalisation, followed by lending rates and then by deposit rates. Unfortunately, this conventional approach was not followed in South Africa, just as in many other developing countries. South Africa, therefore, had to tighten its capital control in 1985 following massive capital flight, which was worsened by the worldwide imposition of economic sanctions in the 1980s.

Although nominal interests increased rapidly following interest rate liberalisation, the real interest rates remained largely negative until the mid-1980s. This was largely due to the high inflationary pressures during the 1980s. The nominal deposit rate, for example, increased immediately after the adoption of financial liberalisation, from 5.54% in 1980 to 18.29% in 1984 before declining between 1984 and 1987. Between 1988 and 1990, the nominal deposit rate increased again, with the highest rate (18.86%) being recorded in 1990. However, this high deposit rate did not last for long. Between 1991 and 1994 the nominal deposit rate showed another declining trend. Although the rate increased between 1995 and 1998, the rate later declined in 2000. By 2001, the nominal deposit rate was 9.37%. Despite this high and generally increasing rate, the real deposit rate exhibited a number of negative values. The real deposit rate remained negative during the first 4 years after liberalisation, despite the rapid financial reforms adopted in 1980. The lowest rate was -10.12%, recorded in 1987. However, the rate thereafter remained positive in most cases, with the highest rate (7.98%) being recorded in 1997. Between 1997 and 2001 the rate showed a more or less continuously declining trend.

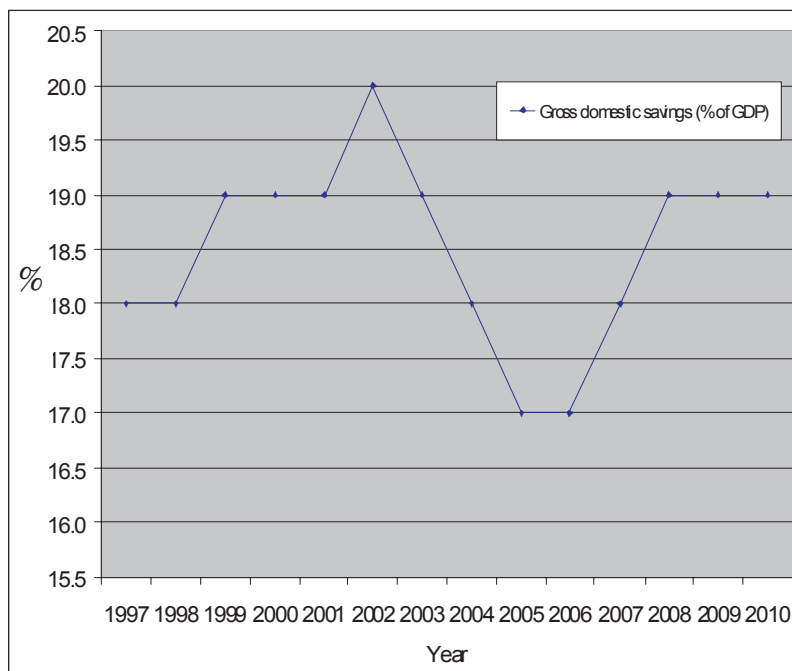
As in the case of the deposit rate, the trend of the lending rate also showed a general upward trend following the liberalisation of interest rates in 1980. The nominal lending rate increased from 9.50% in 1980 to 19.33% in 1982, before declining slightly to 16.67% in 1983. The rate later increased to 22.33% in 1984. Between 1985 and 1987 the nominal lending rate showed a declining trend. Although the rate improved

between 1988 and 1990, it later declined between 1991 and 1994. Between 1995 and 1998 the rate showed an increasing trend. However, since 1998, the rate has been declining. It is worth noting that throughout the period 1980-2001 the nominal lending rate remained at a double-digit level, with the exception of 1980 when the lending rate of 9.50% was recorded. Unlike other rates, the real lending rate remained positive in most cases, with the exception of -3.43% recorded in 1980, -1.86% in 1986, -6.32% in 1987, and -0.80% in 1988. The highest real rate was 13.22%, recorded in 1998. This persistent positive real lending rate was attributed to the high and increasing nominal lending rate, which in most cases was above the prevailing inflation rate. Figures 1-3 show the trends of deposit rate, gross domestic savings and GDP per capita (% change) in South Africa during 1997-2010, respectively.



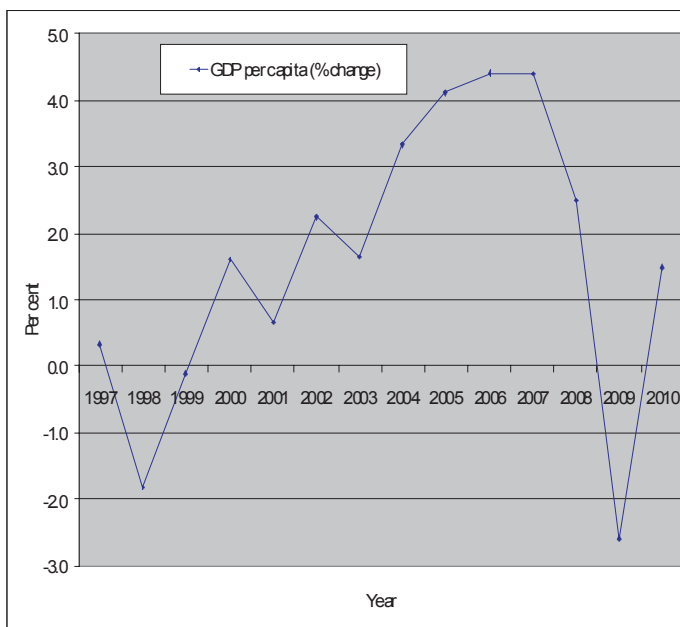
Source: World Development Indicators (2012).

Figure 1. The Trend of Deposit Rate in South Africa During 1997-2010



Source: World Development Indicators (2012)

Figure 2. The Trend of Gross Domestic Savings in South Africa During 1997-2010



Source: World Development Indicators (2012)

Figure 3. The Trend of GDP Per Capita (% Change) in South Africa During 1997-2010

3. Literature Review. The argument that advocates that interest rate liberalisation leads to economic growth is based on the theoretical framework and analytical underpinning of McKinnon (1973) and Shaw (1973). In their separate works these 2 economists argued that the pursuance of policies such as low and administered interest rates, selective credit control, and concessional credit practices, among others, lead to widespread financial repression in developing countries (Odhiambo, 2005). According to the theory of McKinnon and Shaw, which later became known as the McKinnon-Shaw hypothesis, the liberalisation of interest rates enables savers to switch some of their savings from unproductive real assets to financial assets - hence expanding the supply of credit in the economy. In this way, interest rate liberalisation impacts positively on economic growth, inter alia, through its influence on financial deepening and savings. McKinnon (1973), for example, assumed that the constraint on investment in developing countries is the supply rather than the demand for loanable funds. This is because financial sectors in many developing countries are assumed to be highly repressed and the demand for loanable funds exceeds the supply. In this way, an increase in interest rates will unambiguously attract deposits (loanable) funds, thereby leading to an increase in financial deepening, savings and economic growth. This orthodoxy became so popular that it even influenced the thinking of the World Bank and International Monetary Fund (IMF). Although the ideal of interest rate liberalisation has received significant support over the years, the mechanism through which it affects economic growth remains controversial, on both the empirical and the theoretical fronts.

In particular, the relationship between interest rates and savings has been the subject to intense debate among economists for many years. On the one hand, there are authors who find empirical support for the proposition of a significantly positive interest responsiveness of savings. On the other hand, there are those who find little or no support for the above-mentioned proposition. Studies, which have found some support for positive interest rate elasticity of savings include those of Fry (1977; 1978), Yusuf and Peters (1984), Rossi (1988), Leite and Makonnen (1986) and De Melo and Tybout (1986), among others. Contrary to these findings, there are studies that have found very little or no support for positive interest elasticity of savings. These include Williamson (1968); Gupta (1984, 1987); Giovannini (1983); Bandiera et al. (1999); Warman and Thurwill (1994); Ocampo et al. (1985); and Arrieta (1988), among others.

4. Empirical Model Specification.

4.1. A Multivariate Granger-Causality Model. In this section, a trivariate Granger causality model is used to examine the causal relationship between interest rate liberalisation, savings and economic growth in South Africa. Unfortunately, causality studies based on a bivariate framework have been found to be very unreliable, as the introduction of a third important variable could change both the inference and the magnitude of the estimates (Caporale and Pittis, 1997; Caporale et al., 2004). The trivariate Granger causality test based on the error-correction model can be expressed as follows (Odhiambo, 2008):

$$y / N_t = \lambda_0 + \sum_{i=1}^m \lambda_{1i} y / N_{t-i} + \sum_{i=1}^n \lambda_{2i} D_{t-i} + \sum_{i=1}^n \lambda_{3i} GDS / GDP_{t-i} + \lambda_4 ECT_{t-1} + \mu_t \quad (1)$$

$$D_t = \varphi_0 + \sum_{i=1}^m \varphi_{1i} y / N_{t-i} + \sum_{i=1}^n \varphi_{2i} D_{t-i} + \sum_{i=1}^n \varphi_{3i} GDS / GDP_{t-i} + \varphi_4 ECT_{t-1} + \varepsilon_t \quad (2)$$

$$GDS / GDP_t = \delta_0 + \sum_{i=1}^m \delta_{1i} y / N_{t-i} + \sum_{i=1}^n \delta_{2i} D_{t-i} + \sum_{i=1}^n \delta_{3i} GDS / GDP_{t-i} + \delta_4 ECT_{t-1} + v_t \quad (3)$$

where:

ECT_{t-1} = error correction term lagged one period,

y/N_{t-1} = real per capita income (y/N),

D_{t-1} = deposit interest rate,

GDS/GDP_{t-1} = Gross domestic savings (% of GDP),

μ , ε and v = mutually uncorrelated white noise residuals.

In addition to indicating the direction of causality amongst variables, the error correction model also enables us to distinguish between short-run and long-run Granger causality. For example, the F-test and the explanatory variables indicate the short-run causal effects, whereas the long-run causal relationship is implied through the significance of the t-test of the lagged error-correction term.

4.2. Data Source and Definitions of Variables.

4.2.1. *Data Source.* Annual time series data, which covers the 1980 to 2011 period, is utilised in this study. The data used in the study are obtained from different sources, including various series of the South African Reserve Bank reports, International Financial Statistics (IFS) Yearbooks published by the International Monetary Fund and World Bank Statistical Yearbooks.

4.2.2. *Definition of Variables.* The following are definitions of the variables used in this study:

i) Deposit rate (d) = proxy for interest rate liberalization.

ii) Real GDP per capita: The real per capita GDP is computed as follows:

Real GDP per capita (y/N) = real GDP (y)/total population (N).

iii) Savings (S/Y) = gross domestic savings/GDP.

4.3. Empirical Analysis.

4.3.1. *Stationarity Tests.* The results of stationary tests in levels (not presented here) indicate that the variables used in this study are non-stationary in their levels. The variables are, therefore, differenced one, in order to perform stationary tests on differenced variables. Tables 1 and 2 present the results of the stationarity tests on the differenced variables.

The results reported in Tables 1 and 2 show that after differencing the variables once, all the variables were confirmed to be stationary. It is, therefore, justified to conclude that all the variables are integrated of order one $[I(1)]$.

Table 1. Stationarity Tests of Variables on First Difference: PHILIP-PERRON (PP) TEST

Variable	NO TREND	TREND
DLd	-3.451775**	-3.591020**
DLy/N	-3.518831**	-4.837894***
LGDS/GDP	-5.424647***	-5.564620***

Note: The truncation lag for the PP tests is based on Newey and West (1987) bandwidth.

Notes: *, ** and *** denote the 1%, 5% and 10% levels of significance respectively.

Table 2. Stationarity Tests of all Variables on First Difference: DF -GLS Test

Variable	NO TREND	TREND
DLd	-4.917164***	-5.135038***
DLy/N	-3.167021***	-4.256774***
LGDS/GDP	-3.316975***	-4.829880***

Notes: *, ** and *** denote the 1%, 5% and 10% levels of significance respectively.

The results reported in Tables 1 and 2 show that after differencing the variables once, all the variables were confirmed to be stationary. It is, therefore, justified to conclude that all the variables are integrated of order one [I(1)].

4.3.2. ARDL-Bounds Testing Approach. Having established that the 3 variables used in this study are integrated of the same order (order one), the next procedure is to test the possibility of cointegration among them. For this purpose, we use the recently introduced ARDL-bounds testing approach. The ARDL-bounds model used in this study can be expressed as follows:

$$\begin{aligned} \Delta \ln y / N_t = & \alpha_0 + \sum_{i=1}^n \alpha_{1i} \Delta \ln y / N_{t-i} + \sum_{i=0}^n \alpha_{2i} \Delta \ln D_{t-i} + \\ & \sum_{i=0}^n \alpha_{3i} \Delta \ln GDS / GDP_{t-i} + \alpha_4 \ln y / N_{t-1} + \\ & \alpha_5 \ln D_{t-1} + \alpha_6 \ln GDS / GDP_{t-1} + \mu_t \end{aligned} \quad (4)$$

$$\begin{aligned} \Delta \ln D_t = & \beta_0 + \sum_{i=1}^n \beta_{1i} \Delta \ln D_{t-i} + \sum_{i=0}^n \beta_{2i} \Delta \ln y / N_{t-i} + \\ & \sum_{i=0}^n \beta_{3i} \Delta \ln GDS / GDP_{t-i} + \beta_4 \ln D_{t-1} + \\ & \beta_5 \ln y / N_{t-1} + \beta_6 \ln GDS / GDP_{t-1} + \mu_t \end{aligned} \quad (5)$$

$$\begin{aligned} \Delta \ln GDS / GDP_t = & \delta_0 + \sum_{i=1}^n \delta_{1i} \Delta \ln GDS / GDP_{t-i} + \sum_{i=0}^n \delta_{2i} \Delta \ln D_{t-i} + \\ & \sum_{i=0}^n \delta_{3i} \Delta \ln y / N_{t-i} + \delta_4 \ln GDS / GDP_{t-1} + \delta_5 \ln D_{t-1} + \delta_6 \ln y / N_{t-1} + \mu_t \end{aligned} \quad (6)$$

where:

$\ln y / N$ = the log of real per capita income.

$\ln D$ = deposit interest rate.

GDS / GDP = gross domestic savings (% of GDP).

μ_t = white noise error term.

Δ = first difference operator.

The ARDL-bounds testing approach to cointegration involves 2 major steps. In the first step, the order of lags on the first differenced variables in equations (4)-(6) is obtained from the unrestricted models. For this purpose, the Akaike information criterion (AIC) and the Schwartz Bayesian criterion (SBC) are used. In the second step, the bounds F-test is applied to the optimal lags of equations (4)-(6), in order to establish whether there is a long-run relationship between interest rate liberalisation, savings and economic growth. The results of the bounds test are reported in Table 3.

Table 3. Bounds F-test for Cointegration

Dependent variable	Function	F-test statistics
$\Delta \ln y/N_t$	$y/N(D, GDS/GDP)$	4.6219**
$\Delta \ln D_t$	$D(y/N, GDS/GDP)$	0.9689
$\Delta \ln GDS/GDP_t$	$GDS/GDP(D, y/N)$	4.1328*
Asymptotic Critical Values		
	1 %	5% 10%
	I(0)	I(1) I(0) I(1) I(0) I(1)
Pesaran et al. (2001), p. 301, Table CI(iv) Case IV	4.99	5.85 3.88 4.61 3.38 4.02

Note: ** and * denote the statistical significance at the 5% and 10% levels, respectively.

The results reported in Table 3 show that there 2 cointegrating vectors, namely economic growth (y/N) and gross domestic savings (GDS/GDP). This is supported by the calculated F-statistics in the y/N and GDS/GDP equations, which are higher than the upper-bound critical values at the 5% and 10% levels, respectively. Unlike in the y/N and the GDS/GDP equations, the calculated F-statistic in the interest rate equation is lower than the upper-bound critical value. This means that the null hypothesis of no cointegration cannot be rejected in this equation. This applies, irrespective of whether the test is conducted at the 1%, 5% or 10% levels.

4.3.3. Analysis of Causality Test Based on Error-Correction Model. Although cointegration indicates the presence of Granger causality, at least in one direction, it does not indicate the direction of causality between the variables. The direction of the Granger causality can only be detected through the error-correction model (ECM) derived from the long-run cointegrating vectors. The results of the causality test between interest rate liberalisation, domestic savings (GDS/GDP) and economic growth (y/N) are displayed in Table 4.

The results reported in Table 4 show a long-run unidirectional causal flow from interest rate liberalisation to economic growth — both in the short run and in the long run. The short run causality is supported by the corresponding F-statistics in the economic growth which is statistically significant. The long-run causality, on the other hand, is supported by the coefficient of the error-correction term in the economic growth function, which is negative and statistically significant. The results also show that there is a short-run and a long-run unidirectional causality from both interest rate liberalisation and economic growth to gross domestic savings. This is confirmed by the corresponding F-statistics and the coefficient of the error-correction term in the gross domestic savings equation which are all statistically significant.

Table 4. Causality Test between Interest Rate Liberalisation, Domestic Savings and Economic Growth

F-statistics [P-value]				t - statistics
Dependent variable	$\Delta \ln y/N_t$	$\Delta \ln D_t$	$\Delta \ln GDS/GDP_t$	ECM _{t-1}
$\Delta \ln y/N_t$	-	6.5755[0.0046]***	2.0612[0.1370]	-0.21 [-2.374]**
$\Delta \ln D_t$	1.8078[0.1934]	-	1.6491[0.2130]	-
$\Delta \ln GDS/GDP_t$	6.6473[0.0026]***	4.5778[0.0104]**	-	-0.8514 [-4.253]***

Note: ** and *** denote statistical significance at the 5% and 1% levels, respectively.

5. Conclusion. In this paper, the dynamic relationship between interest rate liberalization, savings and economic growth has been investigated - using the recently developed ARDL-bounds testing approach. Specifically, the paper attempts to answer two critical questions: i) Does interest rate liberalization Granger-cause savings in South Africa? And ii) Do savings that result from interest rate liberalisation Granger-cause economic growth? The interest rate liberalisation in this case is measured by the deposit rate. The cointegration results show there are two cointegrating vectors between interest rate liberalization, savings and economic growth. The causality results show a unidirectional causal flow from interest rate liberalization to gross domestic savings. The results apply — irrespective of whether the causality is estimated in the short run or in the long run. The results also show a unidirectional causal flow from interest rate liberalisation to economic growth. The study, however, failed to find any causality from savings to economic growth. This shows that, while interest rate liberalization (proxied by the deposit rate) Granger-causes savings, the savings that result from interest rate liberalisation do not Granger-cause economic growth. This finding is not surprising - given the low level of savings that South Africa has experienced during the past decades. Indeed, South Africa's average savings rate has dwindled significantly since the 1980s. Although efforts have been made in recent years to boost the level of savings in the country, the current savings rate is still considered to be very low, and is far below the country's potential level. In fact, if it were not for the continued increase in corporate savings and the substantial increase in government savings over the past few years, South Africa by now would be fully reliant on foreign capital inflow for its investment — a source of investible funds found to be very unreliable and unpredictable in many countries — especially during the periods of economic and political uncertainty.

References:

1. Arrieta, Gerardo M. (1988). Interest Rates, Savings and growth in LDCs: An Assessment of Recent Empirical Research, *World Development* 16(5): 589-605.
2. Bandiera, O., Caprio, G., Honohan, P. and Schiantarelli, F. (1999). Does Financial Reforms Raise Or Reduce Savings? Policy Research Working Paper No. 2062, World Bank.
3. Caporale, G. M. and Pittis, N. (1997). Causality and Forecasting in Incomplete System, *Journal of Forecasting* 16: 425-437.
4. Caporale, G M, Howells, P.G and Soliman, A.M. (2004). Stock Market Development and Economic Growth: The Causal Linkages. *Journal of Economic Development* 29(1): 33-50.
5. De-Mello, J. and Tybout, J. (1986). Effects of Financial Liberalisation on Savings and Investment in Uruguay. *Economic Development and Cultural Change*, 34 (3): 561-585.
6. Fry, M.J. (1977). Financial Instruments and Markets, In *Conferencia Internacional Sobre Economia Portuguesa*, 11 a 13 Outubro de 1976ed, German Marshall Fund of the United States and Fundacao Calouste Gulbenkian: 189-208.

7. Fry, M.J. (1978). Money and Capital or Financial Deepening in Economic Development, *Journal of Money, Credit and Banking* 10: 464-75.
8. Giovannini, A. (1983). The Interest rate Elasticity of Savings in Developing Countries: Existing Evidence, *World Development* 11 (7): 601-607.
9. Gupta, K.L. (1984). Financial Intermediation, Interest Rate and the Structure of Savings: Evidence from Asia, *Journal of Economic Development* 9 (July): 7-24.
10. Gupta, K.L. (1987). Aggregate Savings, Financial Intermediation and Interest Rates, *Review of Economics and Statistics* (May).
11. Leite, S. and Makonnen, D. (1986). Savings and Interest Rates in the BCEAO Countries: An Empirical Analysis, *Savings and Development* 10 (3): 219-131.
12. McKinnon, R.I. (1973). Money and Capital in Economic Development, The Brookings Institution, Washington D.C.
13. Newey, W. and West, K. (1987). A Simple Positive Semi-definite, Heteroskedasticity and Autocorrelation Consistent Covariance Matrix, *Econometrica*, 51.
14. Odhiambo, N.M. (2005). Money and Capital Investment in South Africa: A Dynamic Specification Model, *Journal of Economics and Business*, Volume 57, Issue 3 (May/June).
15. Odhiambo, N.M. (2008). Financial Depth, Savings and Economic Growth in Kenya: A Dynamic Causal Linkage, *Economic Modelling* 25.
16. Ocampo, J., Londerio, J.L. and Villar, L. (1985). A horro e Inversion en Colombia, *Coyuntura Economica*, June.
17. Pesaran, M.H., Smith, R.J. and Shin, Y. (2001). Bounds Testing Approaches to the Analysis of Level Relationships, *Journal of Applied Econometrics*, Vol. 16, Issue 3, pp. 289-326.
18. Rossi, N. (1988). Government Spending, the Real Interest Rate and the Behavior of Liquidity Constrained Consumers in Developing Countries, *IMF Staff Papers* 34 (March): 204-40.
19. Shaw, E.S. (1973). Financial Deepening in Economic Development, New York, Oxford University Press.
20. Warman, F. and Thirlwall, A.P. (1994). Interest Rates, Savings, Investment and Growth in Mexico 1960-1990: Test of the Financial Liberalisation Hypothesis, *The Journal of Development Studies* 30 (3): 629-649.
21. Williamson, J.G. (1968). Personal Savings in Developing Nations: An Inter-temporal Cross-section from Asia, *The Economic Record* 44 (June): 194-210.
22. Yusuf, S. and Peters, R.K. (1984). Savings Behaviour and Its Implications for Domestic Resource Mobilisation: The Case of Republic of Korea, *World Bank Staff Working Paper No.628*, Washington, DC, The World Bank.

Стаття надійшла до редакції 27.10.2012.