



Research Paper

## Effect of Value Added Tax on Savings in Nigeria.

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### ABSTRACT

*This paper empirically estimates the effect of Value Added Tax (VAT), interest rate and inflation rate on savings in Nigeria using annual data from 1994 to 2019. This paper further employed Auto Regressive Distributed Lag (ARDL) approach in estimating the relationship among the variables. The ARDL results conclude that VAT has positive influence on savings in both long run and short run, while. Similarly, interest rate has negative effect in the long run and positive effect in the short run-on savings, whereas inflation rate has negative relationship on savings. Therefore, this study recommends that government should choose appropriate rates of interest that will favor the consumers, savers and investors. This will foster savings, investment and stabilize the level of consumption in the economy. Policy of reviewing VAT rate from time to time should also be established by the government accordingly in order to increase the national savings of the country.*

**KEYWORDS:** Savings, Value Added Tax, Interest Rate and Inflation Rate.

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### I. INTRODUCTION

Savings is one of the main rationales for taxing consumption because it is believed that consumption taxes discourage consumption, encourage savings, and thus generate higher economic growth. VAT, or sales tax in some countries, is not necessarily a bad omen, where there is good governance; the rate is imposed to curb excessive consumption to generate revenue for national development. In Nigeria, many stakeholders have the perception that, if states will collect 85% of the proceeds of the VAT, while the federal government pockets only 15%. Most States are reckless with money, and it doesn't make over to reckless spenders at the state level. They also view that adjustment in income tax, which allows for some discrimination. Nigeria needs to take more from the rich and use proceed to provide for the poor, especially infrastructure like water, roads, electricity, health services, among others. Rich individuals and companies making massive profits provided by opportunities in this country must pay for the welfare of many Nigerians who lack opportunity. This is however, contrary to Fowler's (FIRS former Chairman) statement, that "VAT is a consumption tax, only by choice". Statistical records have shown that Nigerian government has generated over 7.2 billion-naira 1994 on VAT, 31 billion naira in 1996, and 36 billion naira in 1998. While in the year 2017, the amount generated from VAT stood at over 967 billion naira (CBN, 2018). On the other hand, national savings, which is also vital to the economy stood at over 110 billion naira in 1994, over 134 billion naira in 1996 and over N00 billion naira in 1998. Its value in 2017 stood at over 12 trillion naira (CBN, 2018).

Simon, Oke and Jolaosho (2013) highlighted that the result of interest rate on savings is that the level of funds mobilization by banks is quite small due to a number of motives, ranging from low savings deposit rates to the poor banking conducts or culture of the people. As a matter of fact, the moneys from household savings are comparatively cheaper and steadier than government deposits that are very unstable and expensive. Conceptually, savings signify that part of revenue not spent on present consumption. When applied to capital investment, savings rise output (Olusoji, 2003).

The outcome of inflation on the consumption patterns of consumers unlike the effect of revenue on consumer expenditure has not established the needed attention both hypothetically and empirically. The result of

inflation on consumer expenditure is both direct and indirect. Periods of inflation impacts consumers to save rather than to consume because of distrust and doubt in the economy. Inflation again impact consumer expenditure behavior by persuading both liquid and illiquid assets since in period of inflation, there is incentive to hold real assets and not assets fixed to nominal values or not indexed to inflation (Nyamekye & Poku, 2017).

From the foregoing, one can see that, analyzing the effect of VAT on savings in Nigeria, will no doubt provide us with the necessary information as to whether, the present rate of 7.5% being charged on VAT can excessively increase savings in Nigeria or not. It is against this background that this paper investigated the effect of VAT on savings in Nigeria.

### **1.1 Statement of the Research Problem**

The approved increase in VAT rate by 50% has been on the fiscal agenda of the Federal Government for some time now. One of the arguments of the Government in support of the increase is that Nigeria's 5% VAT rate is the lowest in Africa. However, the argument does not acknowledge the difference between the VAT regime in the other countries and Nigeria, where the VAT regime is a variant of sales tax. It will be recalled that the Government once increased the VAT rate to 10% in 2007 but had to revert to the status quo following opposition by the organized labour (KPMG, 2019). This is however ignoring the fact that VAT is not necessary a bad omen, in countries where there is good governance, the rate is imposed to curb excessive consumption to generate more revenue for national growth, increase in savings and provide investment opportunities. Average VAT in Europe is 21%. It is 15% in South Africa, Ghana has a VAT rate of 10%, Republic of Benin 18% while Togo has multiple rates ranging from 5% to 30% (Okoli & Afolayan, 2015).

Although empirical evidence on the actual effectiveness of VAT in stimulating savings is very limited. However, there is some country-specific empirical work that is relevant here. For example, Freebairn (1991) investigates the effects of a consumption tax on the level and composition of Australian saving and investment, and finds that the short run effects on aggregate savings are small, though positive. Regarding VAT impact on saving, Metcalf (1995) emphasizes that there is to date no clear-cut answer on whether implementing the VAT would increase savings rate. Therefore, this paper seeks to analyze effect of VAT on savings in Nigeria.

## **II. LITERATURE REVIEW**

### **2.1 Concept of Value Added Tax (VAT)**

The VAT has been widely used in Europe for nearly four decades, and now has also been adopted in numerous other countries around the world. "Value-added" is the value that a firm adds during production to materials and services purchased from other firms. It equals the difference between a firm's gross receipts and the costs of all intermediate inputs used to produce the product (including the cost of capital goods but excluding wages). A tax on the value-added of all businesses therefore has as its base the total value of all final products, making a VAT equivalent (under some conditions) to a national retail sales tax (James & Asmaa, 2012).

According to Ebrill, Keen, Bodin and Summers (2001) as cited in James & Asmaa, (2012) disclosed that several studies have examined the various issues involved when implementing a VAT in developing and developed countries, for instance, Metcalf (1995) confers the many issues related to the strategy of a VAT, including implementation, administration, compliance costs, its effect on savings and labor supply, its distributional effects, and various transitional alarms if implemented in the U.S. With regard to its impact on saving, Metcalf (1995) also emphasizes that there is to date no strong cut answer on whether implementing the VAT would increase savings rate. Bird (2005) and Diamond and Zodrow (2007, 2008) also discuss VAT design issues, and similarly conclude that the effect of a VAT on consumption is an important but unsettled issue.

The VAT was adopted in Nigeria in January 1993 by the VAT Act No102, but was not implemented until January 1994 at a standard rate of 5 percent. This represented one of the lowest rates in the world along with fewer other countries like Canada, Japan and Panama as at 2009. For example, Denmark, Norway and Sweden set their VAT rate up to 25 percent and above. While Bulgaria, China, Finland, Madagascar (Malagazy), Samoa and Singapore were contemporaries with Nigeria in 1994, France Uruguay, Sweden, Ecuador and Norway Started since 1948, 1968, 1969, 1970 and 1970 respectively (Adebayo, 2016).

### **2.2 Concept of Savings**

Ayanwu & Oaikhenan (1995) defined savings as the amount of income per capital time period that is not consumed by economic units. For the household, it offered that part of disposable income not spend on domestically produced consumption goods and services. For the firm, it signifies undistributed business profits. Savings is a flow variable being measure overtime. Concisely, savings may be defined as after-tax income not spent. It may rightly be referred to or assumed "deferred consumption", being income left over for the future consumption on capital investment or for precautionary and speculative motives. Succinctly, savings is summed

as “disposable income less consumption”. In developing countries and Nigeria in particular, private savings constitutes the main source of capital accumulation for investment drives.

Nkah (1997) sees savings as the amount of income per time that is not consumed by economic units. Accordingly, Samuelson et al (1998) defined savings as income minus consumption. Following from the above; savings can be made by persons (personal or private saving) or by corporate organizations such as firms (corporate savings or retained savings). Personal savings is that portion of disposable income that is not consumed, while corporate savings is that portion of the firm’s profit that is not distributed as dividends to shareholders. Thus, for a country, the total supply of available savings is simply the sum of domestic savings and foreign savings. Smith (1976) documented the importance of savings when he perceived that capital is increased by parsimony and diminished by prodigality and misconduct. Prior to 1936, the classical economists proposed their theory on the savings, and stated that a negative relationship existed between savings and interest rates, this is also the equilibrating force between savings and investments and the decision to save or invest, depend solely on the rate of interest. Therefore, at any specific level of revenue, the amount saved will increase with any rise in the rate of interest.

### **2.3 Relationship between Interest Rate and Savings**

The literature on the relationship between interest rate and savings is found to be scarce; amongst the few researchers that worked on the subject matter was Onwumere, et al (2012), who investigated the Impact of Interest Rate Liberalization on Savings and Investment in Nigeria. It covers the period 1976 to 1999. Simple linear regression technique was adopted using SPSS statistical software. The study reveals that interest rate liberalization had negative nonsignificant impact on savings and negative significant impact on investment in Nigeria. Thus, interest rate liberalization, though a good policy, was counterproductive in Nigeria. This might probably be as a result of improper pace and sequencing. Another study was carried out by El-Seoud (2014). His study concluded that the interest rate in Bahrain, just like inflation, has a favorable and substantial effect on the national saving rate in the short run. However, in the long run, El-Seoud (2014) found that while the interest rate has a favorable relationship on Bahrain’s saving rate, this effect is now insignificant. On the other hand, in the results developed from the study of Syden (2014) on South Africa, it indicated that interest rate has an adverse relationship and significantly influences the saving behavior of South Africa. In a study on the Turkish economy, the researchers discovered that there was no important relationship between interest rates and saving rate found in the long run (Er, Tugcu & Coban, 2014).

Raza, Hena and Saeed (2017) examined the effects of interest rate on savings and deposits of scheduled banks (registered in the list of State Bank of Pakistan) & other financial institutions in Pakistan, during 2002 to 2016. The data was mainly based on secondary sources which have been taken from World Bank and annual reports of State Bank of Pakistan (SBP). Savings & deposit are considered as dependent variable in two different models and deposit interest rate as explanatory variable; the number of deposits has been taken that is explained in local currency in the financial statements of SBP. Ordinary least square regression method has been applied to investigate the relation between interest rate and savings & deposits in Pakistan with the help of E-views statistical software. The result shows that deposit rate is positively affected by interest rate whereas savings is adversely influenced by interest rate but comparatively interest rate is strongly significant for savings.

### **2.4 Relationship between Inflation Rate and Savings**

The relationship between inflation rates on savings is that savings help moderate the business cycle as the economy faces hard economic situations (Syden, 2014). To have a justifiable economic growth, there is a need for sustainable resources to support it. That is why savings are required to finance capital expenditure. These high-savings rate levels have permitted the economy to attain high levels of investment (Horioka & Terada-Hagiwara, 2011). China’s domestic savings rate is one of the highest in the world (Loayza, Schmidt-Hebbel, & Serven, 2000). Inadequate savings would leave the economy exposed to shocks in income uncertainty and unexpected increase in prices.

Almost all the previous literatures that were found concerning the relationship of the variables inflation rate and savings rate concluded that the relationship between the two are positive and significant. In a cross-sectional data on inflation rates and savings rates of many nations in the world, both advanced and developing, the results gotten in the recent study indicated that inflation rates of all the nations positively impacts each of the nations’ savings rate (Cheng & Li, 2014). El-Seoud (2014) however conducted a study on the effect of Gross Domestic Product, interest rate, and inflation rate on the national saving rate in the kingdom of Bahrain over the past 20 years. The researcher discovered that empirically inflation rate has a favourable relationship and significant influence on Bahrain’s saving rate in both the long run and short run.

Similarly, Syden (2014) also established that in their study of South Africa’s 48 years of household savings data, inflation significantly generates a positive impact on the continent’s saving rate. As for the case of Turkey, Er, Tugcu, & Coban (2014) used the ARDL approach and the study’s results indicated that the inflation

favorably affects inflation rate and savings but there was no relationship of significance between inflation and savings in the short run. Using two stage least squares model, the study of Chaturvedi, Kumar & Dholakia (2009) on the relationship between economic growth, inflation, and saving rate in Asia exposed that inflation rate has a positive effect on the interest rates of the Asian countries as well. On the other hand, Heer & Suessmuth (2006) exploited data of the inflation and saving rates from United States postwar period in order to investigate the monetary policy regimes of the three eras, namely the Pre-Volcker Era ('65-'78), Volcker Era ('79-'87), and the Greenspan Era ('88-'98). There appeared to be vague results on the effect of inflation on the saving rates. In the Pre-Volcker Era and Greenspan Era, inflation negatively affected the saving rates. In the Volcker Era, on the other hand, inflation is positively related with saving rates (Heer & Suessmuth, 2006).

**2.5 Theoretical Review**

**The Benefit Theory of Taxation:** This theory describes that every citizen should be called upon to pay taxes in proportion to the benefits derived by him from services provided by the Government. Impliedly, it means that the state provides certain services to its residents who should, therefore, give to the cost or value of these services in proportion to benefits received by them. The more the benefit a resident derives, the more taxes he should bear, is the main notion of the theory. Milton (1957) posits that the relation between aggregate consumption or aggregate savings and aggregate income, generally termed the consumption function, has occupied a key role in economic philosophy ever since Keynes made it a foundation of his theoretical structure in the General Theory.

**III. METHODOLOGY**

The paper used annual data spanning from of 1994 to 2019. The data was sourced from Statistical Bulletin of the Central Bank of Nigeria and World Development Indicators (WDI) a publication of World Bank. The choice of the study period is based on the availability of data in relation to the variables captured in the model and with the consideration of Nigeria’s VAT increase to 7.5%. The variables in the model are savings (SAV), value added tax (VAT), interest rate (INT) and inflation rate (INF). This paper used Autoregressive Distributed Lag (ARDL) approach to cointegration for data analysis using EViews 9 statistical software. The justification of using this approach is because ARDL is capable of handling both large and small samples of data irrespective of order of cointegration (1(0)). The data collected for the study were used by the researcher in carrying out a systematic investigation by measuring the effect of VAT on savings saving in Nigeria.

**3.1 Model Specification**

This study adapted the model from the works of MacDonald and Ricci (2003) and Asiana and Kumah (2010) to specify the model for estimating the effect of VAT on savings in Nigeria with modification on the variables. The variables for this paper are savings, VAT, inflation rate and interest rate. However, the choice of variables was based on the consideration of the economic condition of the country under study (Nigeria). The model is given as:

$$SAV_t = \beta_0 + \beta_1VAT_t + \beta_2INT_t + \beta_3INF_t + \mu_t \tag{3.1}$$

Where; SAV = savings

VAT= value added tax

INT= interest rate

INF= inflation rate

$\beta_0 - \beta_7$  = coefficients

**IV. RESULTS AND DISCUSSIONS**

**Table 1: Summary Statistics of Variables under Study**

	LSAV	LVAT	INT	INF
<b>Mean</b>	7.28	12.06	18.62	16.71
<b>Median</b>	7.32	12.19	17.87	11.89
<b>Maximum</b>	9.46	13.69	24.77	72.83
<b>Minimum</b>	4.68	8.89	15.13	5.38
<b>Std. Dev.</b>	1.70	1.39	2.36	15.87

Skewness	-0.14	-0.53	0.94	2.63
Kurtosis	1.53	2.20	3.37	9.04
Jarque-Bera	2.23	1.78	3.68	64.31
Probability	0.32	0.41	0.15	0.00
Sum	174.78	289.57	447.04	401.11
Sum Sq. Dev.	66.70	44.93	128.95	5793.56
Observations	24	24	24	24

Source: Author's computations using Eviews 9.

Table 1 shows the descriptive characteristics of the variables estimated in the model. It indicated that the means of all the variables are positive, meaning to say that it will have more of increase than decrease in the changes in all of the variables. The standard deviation of inflation is higher among the variables, while VAT is having lower which suggest that the degree of variability of inflation is higher than that of the interest rate, Value Added Tax, and savings, meaning to say that the dispersion of the data point of VAT is closer to its mean. However, the returns of the savings and VAT are negatively skewed which suggests that the majority of the distribution is concentrated to the right, meaning to say that the low values in the distribution are relatively few, whereas the returns of the interest rate and inflation rate are positively skewed which suggests that the majority of the distribution will be to the left, and the high values in this distribution are relatively few. The inflation rate returns have a higher excess kurtosis than interest rate, VAT and savings which suggests that more of the inflation rate variance might be as a result of infrequent high deviations. The Jarque-Bera suggests the inflation rate departure from normality is high and that the variable is not normally distributed.

#### 4.1 Inferential Statistics Result

##### Unit Root Tests Result

**Table 2 Unit Root Tests (Augmented Dickey-Fuller and Phillips-Perron)**

Variables	Augmented Dickey-Fuller		Level	Phillips-Perron	
	Level	1 <sup>st</sup> Diff.		Level	1 <sup>st</sup> Diff.
LSAV	-0.407179	-4.124932**	-0.824924	-4.124281**	
LVAT	-3.420492***	-6.106052*	-3.247225***	-6.106052***	
INT	-2.202114	-4.492923*	-2.315475	-4.492786*	
INF	-2.796691	-5.666068*	-4.012150**	-5.519539*	

Source: Author's computations using Eviews 9.

Note: \*, \*\* and \*\*\* indicates significant at 1%, 5% and 10% respectively (the coefficients without asterisks signified evidence of non-stationary)

To confirm whether the variables are stationary or not a unit root tests were carried out using Augmented Dickey-Fuller and Phillips-Perron testing approaches and the results is presented in Table2. Result from the ADF test demonstrated that savings is stationary after first difference (I(1)), while VAT is stationary at level value (I(0)). However, interest rate and inflation rate are stationary after first difference as indicated by ADF test. Consequently, the P-P test shows that; savings and interest rate are all stationary after first difference, while VAT and inflation rate are stationary at level value. From the results we can deduce that the series exert different order of integrations with some are stationary at level value and others are stationary after first difference. This is also proving to us that the best method that is suitable to handle the result of this nature is ARDL approach. The study further conducted bound test in order to find the presence of cointegration among the variables. The bound test result is presented in Table 4.3.

#### 4.2 ARDL Bounds Test

**Table 3: ARDL Bounds Test**

Test Statistics			
F-statistics		18.4	
Critical Value Bounds			
Significance Level	I(0)	I(1)	
10%	2.37	3.2	
5%	2.79	3.67	

1%	3.65	4.66
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Source: Author's computations using Eviews 9. (see appendix I)

From the Table 3, it is evident that there is a presence of long run relationship at 1% level of significance between savings, VAT and other variables (Interest rate and inflation rate). This is because; the F-statistic (18.4) is greater than the lower and upper critical value bounds at 1%, 5% and even 10% level. Therefore, the null hypothesis of no long run relationship (cointegration) can be rejected. While the alternative hypothesis of existence of long run relationship can be accepted. The presence of long run relationship permitted the study to generate the long-run and short-run relationships among the variables. The result of long run relations is summarized and tabulated in

**4.3 Long Run Coefficient of the ARDL for Savings Model**

**Table 4: Long Run Coefficients of the ARDL**

Dependent Variable: Savings				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
LVAT	1.183434	0.051527	22.967193	0.0000
INT	-0.082854	0.025506	-3.248401	0.0045
INF	-0.003542	0.004198	-0.843935	0.4098
C	-5.193596	1.065142	-4.875965	0.0001

Source: Author's computations using Eviews 9. (see appendix II)

The result in Table 4 shows that, there is positive and statistically significant relationship between VAT and savings. An increase in VAT will lead to increase in savings in Nigeria in the long run. That is to say, a 1% increase in VAT will lead to 1.18% increase in savings in Nigeria. From the result, it is also indicated that the null hypothesis will be rejected, this is because VAT has a significant effect on savings in the long run.

Furthermore, there is negative and statistically significant relationship between interest rate and savings. This means that a 1% increase in lending interest rate will lead to 0.082% decrease in savings in Nigeria. The result explains that an increase (decrease) in interest rate will lead to decrease (increase) in savings in Nigeria in the long run. In the case of inflation rate, there is negative and statistically insignificant relationship between inflation rate and savings. This means that an increase in inflation rate will lead to decrease in national savings in Nigeria in the long run, meaning to say that a 1% increase in inflation rate will lead to 0.0035% decrease in savings in Nigeria.

**4.4 Short Run Coefficient of the ARDL for Savings Model**

**Table 5: Short Run Coefficients of the ARDL**

Dependent Variable: D (Savings)				
Variables	Coefficient	Std. Error	t-Statistics	Prob.
D(LVAT)	0.543243	0.059100	9.191882	0.0000
D(INT)	0.006543	0.011159	0.586349	0.5649
D(INF)	-0.000642	0.001656	-0.387538	0.7029
ECM(-1)	-0.460194	0.043655	-10.541496	0.0000

Source: Author's computations using Eviews 9. (see appendix III)

The result in Table 5 shows that there is positive and statistically significant relationship between VAT and savings in the short run. This means that an increase in VAT will lead to increase in savings in Nigeria in the short run, meaning to say that a 1% increase in VAT will lead to 0.54% increase in savings in Nigeria. Additionally, there is positive and statistically insignificant relationship between interest rate and savings. This indicates that an increase in interest rate will lead to increase in savings in Nigeria in the short run, meaning to say that a 1% increase in interest rate will lead to 0.0065% increase in savings in Nigeria. Moreover, with regards to inflation rate, there is negative but statistically insignificant relationship between inflation rate and savings in the short run. This shows that an increase in inflation rate will lead to insignificant decrease in savings in Nigeria in the short run, meaning to say that a 1% increase in inflation rate will lead to 0.000642% decrease in savings in Nigeria. However, the result shows that the coefficient of Error Correction Model (ECM) has the correct sign that is negative, less than one, and statistically significant. This explains that when there is any disequilibrium in the economy, the system will correct itself from the short run to the long run at the speed of 46%.

**4.5 Stability Tests for Savings Model**

To confirm the stability of the model, this study conducted stability tests through the use of cumulative sum of recursive residual.

## The Cumulative Sum of Recursive Residual Test

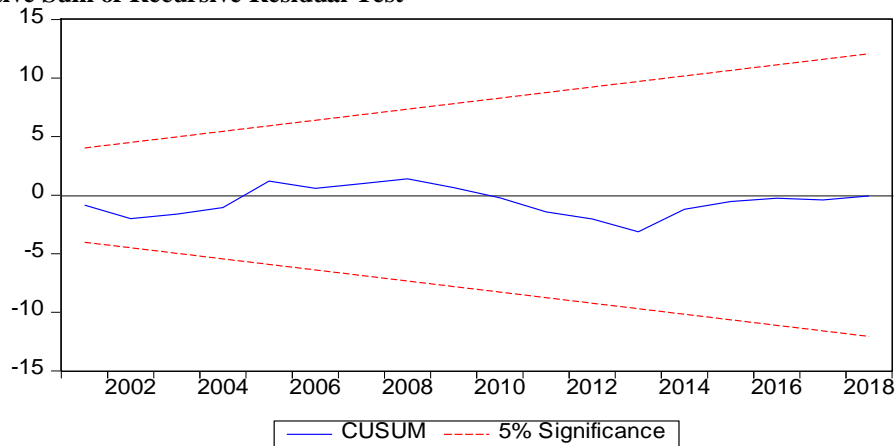


Figure 1: Stability Test

The result of the test from Figure 1 shows that the model is stable, because the recursive errors fall within 5% critical lines of the CUSUM test.

## V. CONCLUSION AND RECOMMENDATIONS

The paper examined the effect of VAT on Savings in Nigeria. It also controlled for other variables such as interest rate and inflation rate which were considered to have influence on savings. The ARDL results conclude that VAT has positive influence on savings in both long run and short run, while. Similarly, interest rate has negative effect in the long run and positive effect in the short run-on savings, whereas inflation rate has negative relationship on savings.

In view of the foregoing, this study recommends that government should maintain the rate of VAT if not increasing to reduce excessive consumption to encourage savings in Nigeria. Policies should also be established as an effective monetary law by the government to be checking when rate should be reviewed or maintained. People need to be educated in knowing the importance of savings by the government, towards encouraging savings.

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**APPENDICES**

**Appendix I**

**ARDL BOUND TESTS FOR SAVINGS AND VAT**

Dependent Variable: LSAV  
 Method: ARDL  
 Date: 08/01/20 Time: 10:10  
 Sample (adjusted): 1995 2019  
 Included observations: 24 after adjustments  
 Maximum dependent lags: 1 (Automatic selection)  
 Model selection method: Akaike info criterion (AIC)  
 Dynamic regressors (1 lag, automatic): LVAT INT INF  
 Fixed regressors: C  
 Number of models evaluated: 8  
 Selected Model: ARDL(1, 0, 1, 0)

Variable	Coefficient	Std. Error	t-Statistic	Prob.*
LSAV(-1)	0.545996	0.089129	6.125942	0.0000
LVAT	0.537284	0.118088	4.549864	0.0002
INT	0.007444	0.013201	0.563914	0.5798
INT(-1)	-0.045060	0.014209	-3.171169	0.0053
INF	-0.001608	0.001751	-0.918353	0.3706
C	-2.357913	0.818569	-2.880529	0.0100
R-squared	0.997624	Mean dependent var		7.487454
Adjusted R-squared	0.996964	S.D. dependent var		1.675154
S.E. of regression	0.092301	Akaike info criterion		-1.715198
Sum squared resid	0.153352	Schwarz criterion		-1.420685
Log likelihood	26.58238	Hannan-Quinn criter.		-1.637064
F-statistic	1511.536	Durbin-Watson stat		2.243463
Prob(F-statistic)	0.000000			

\*Note: p-values and any subsequent tests do not account for model selection.

**Appendix II**

ARDL Bounds Test  
 Date: 08/01/20 Time: 10:11  
 Sample: 1995 2019  
 Included observations: 24  
 Null Hypothesis: No long-run relationships exist

Test Statistic	Value	k
F-statistic	18.40442	3

**Critical Value Bounds**

Significance	I0 Bound	I1 Bound
10%	2.37	3.2



5%	2.79	3.67
2.5%	3.15	4.08
1%	3.65	4.66

Test Equation:  
 Dependent Variable: D(LSAV)  
 Method: Least Squares  
 Date: 08/01/19 Time: 10:11  
 Sample: 1995 2018  
 Included observations: 24

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INT)	0.008864	0.017042	0.520118	0.6093
C	-1.402915	1.086444	-1.291290	0.2129
LVAT(-1)	0.401471	0.162959	2.463623	0.0241
INT(-1)	-0.033249	0.015456	-2.151273	0.0453
INF	0.002553	0.003752	0.680243	0.5050
LSAV(-1)	-0.364381	0.127222	-2.864126	0.0103
R-squared	0.509098	Mean dependent var		0.204625
Adjusted R-squared	0.372736	S.D. dependent var		0.147779
S.E. of regression	0.117041	Akaike info criterion		-1.240269
Sum squared resid	0.246574	Schwarz criterion		-0.945755
Log likelihood	20.88323	Hannan-Quinn criter.		-1.162134
F-statistic	3.733435	Durbin-Watson stat		1.840281
Prob(F-statistic)	0.017071			

### Appendix VIII

#### SHORT-RUN AND LONG-RUN

ARDL Cointegrating And Long Run Form  
 Dependent Variable: LSAV  
 Selected Model: ARDL(1, 0, 1, 0)  
 Date: 08/01/20 Time: 10:12  
 Sample: 1994 2019  
 Included observations: 24

Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LVAT)	0.543243	0.059100	9.191882	0.0000
D(INT)	0.006543	0.011159	0.586349	0.5649
D(INF)	-0.000642	0.001656	-0.387538	0.7029
CointEq(-1)	-0.460194	0.043655	-10.541496	0.0000
Cointeq = LSAV - (1.1834*LVAT -0.0829*INT -0.0035*INF -5.1936 )				