growth extended the Solow model to incorporate an internal determination of the aggregate saving rate. In the author formulation, the rate of saving responds to demographic changes: lower rates of population growth require less saving. However, by specifying a closed-economy in his main theoretical model, the author explicitly assumed that future rates of saving and investment must move in tandem. As a result, saving and investment will adjust to yield a rate of return that is invariant to variations in the rate of population growth.

Second, if we drop the assumption of a closed economy and allow saving and investment to be determined within open economies in which savers are free to invest in other countries, there is no reason whatsoever to believe that national saving and domestic investment will be equal in every future year. Differences between saving and investment can be absorbed by changes in the current account balance. By investing abroad, savers in maturing economies can avoid the implication of a falling domestic rate of return. The interest rate will be thereby be determined by the interaction of the supply and demand of investable funds at the global level.

In his empirical work, most researchers have adopted an intermediate position in which a specific country's interest rate is influenced by both domestic and global factors: countries are neither completely open nor completely closed. The determination of interest rates and other asset returns are evaluated within the framework of models of investment and saving behavior at both the national and global levels; the rate of economic growth is only one of several determinants of that balance. However, the simple conceptual framework does highlight two critical empirical issues for modeling the relationship between economic growth and interest rates. First, is there a strong linkage between the rates of return on physical and financial capital; and second, what is the relative importance of domestic versus global factors in the determination of national interest rates

2.3 EMPIRICAL LITERATURE REVIEW

Wilson and Johannes (2014) investigate the relationship between the interest rate for Namibia; they use time

series technique such as unit root tests, co integration test, and impulse response and variance decomposition. The study use quarterly data for the period (1993 to2012), their result for co integration shows that there is no co integration among the variables.

Adeniran,Yusuf and Adeyemi (2014) examine the impact of exchange rate and interest rate on Nigeria economic growth from(1986 to2013) .They adopted the correlation and regression analysis of the old many least square (OLS) to analyze their data. Their result reveal that exchange rate has positive impact but not significant while interest rate has negative impact on economic growth but not significant.

Uddin, Rahman and Quasor (2014) examine the relationship between Exchange Rate (ER) and Economic Growth (EG) in Bangladesh for a period of 41 years ranges from (1973 to 2013) by using time series econometric technique. The empirical results show that there is a significant positive correlation between exchange rate and economic growth. The results also advocate the presence of long-run equilibrium relationship between exchange rate and economic growth

Hansen and Seshadri (2013) analyze long-span data on real interest rates and growth with focus on estimating their long-run correlation. Their evidence point to a moderately negative correlation that is real interest rate is mildly counter cyclical, their estimate is not precise, and their best estimate of the long run correlation is 0.20. A negative correlation implies that long-non costs due to a period of low interest rates will tend to be slightly offset by a period of high productivity growth.

Obansa ,okoroafor , Aluko and Eze (2013) investigate relationship between exchange rate, interest rate , and economic growth in Nigeria economy over the period from(1970-2010) using vector auto-regression techniques and the forecast error variance decomposition approach . Their result indicates that exchange rate

has a stronger impact on economic growth than interest rate.

Onuora and Osuji (2012) study the links between interest rate and exchange rate on economy growth. Their study adopts the ordinary least square (OLS) method of estimation for data covering the period between (2000 and 2010) the result from their econometric analysis shows that there is a short run relationship between exchange rate, interest rate and economy growth .Their study concludes that in Nigeria, the factors that influence the growth level of growth rate one extent of exchange rate

Tomola, Obamuyi and Olorunfemi(2011) examines the interest rate behavior on economic growth in Nigeria. The co integration and error correction model were used on time series data from (1970-2006). The results demonstrate that interest rates have significant impact on economic growth in Nigeria

Akpam and Johnson (2010) investigate the effect of exchange rate ,interest rate on real output growth in Nigeria based on quarterly series for period (1986-2010) using a simultaneous equation model and a generalized method of moment (GMM) techniques .The results shows that there is no evidence of a strong direct relationship between changes in exchange rate ,interest rate and economic growth in Nigeria.

Shanda, Nwadi ,Mlambo (2010) examine the impact of exchange rate ,interest rate on economic growth in south Africa .They uses quarterly time series data for the period of (1994 -2010) using Johanssen co integration and vector error model techniques their result reveals that exchange rate and interest rate have a dampening long run impact one economic growth in South Africa.

Nicholas (2010) examines the dynamic relationship between interest rate and exchange rate ,using co-integration and error correction models ,the study finds a strong support for the positive impact of interest rate

on financial development .The study also discovered that interest rate do not Granger cause investment and economic growth.

Adofu,Abulu,andAudu (2010) examine the relationship between interest and exchange rate using ordinary least square method data from 1986-2005 the result shows that interest rate has significant and positive impact on Nigeria economy .The analysis carried out shows that interest rate play a significant role in enhancing economic activities and as such monetary authorities should ensure appropriate determination of interest rate level that will break the double edge of interest rate on savers and local investors .

Obamuyi (2009) investigate the relationship between interest rate and economic growth in Nigeria from (1970-2006). Using co integration and error correction model procedures, the result shows that the behavior of interest rate is important from economic growth in Nigeria.

Aliyu (2009) examines exchange rate and interest rate pass through in Nigeria economy for the period of (1986-2007) using a vector error correction model estimation .In the estimation process , the authors found that exchange rate and interest rate pass through in Nigeria economy during the under consideration was low and declined along the price chain.

Anthony ,Uzomba ,and Olatunji (2008) examine the impact of interest rate and exchange on the Nigeria economy from (1975-2008) using the ordinary least square(OLS) techniques ;the findings shows that an increase in interest rate retard investment and economic growth and the lag of exchange rate shows the expected positive sign .The result also further explain that interest rate and exchange rate should be given one consideration ,because a competitive and stable interest and exchange rates will stimulate growth through

investment ,will strength the commercial policy of the country and diversity the productive base of the economy.

Hnat ,korska ,latiri and Vegn (2008) study the relationship between interest rate and exchange rate has been inconclusive ,using an optimizing model of a small open economy .The result indicates that higher domestic interest rate raise the demand for deposit and the money base ,further saying that higher interest rate raise the government's fiscal burden ,and therefore can lead to high expected inflation ,moreover it is also discover that the exchange rate response depends on the size of the interest rate increase and on the initial level of the interest rate .

Chete (2006) also investigate the relationship between real interest rate exchange rate and economic growth in Nigeria .Using ordinary least square method (OLS) .The result showed that there was a unique long run relationship between interest and exchange rate is an important determinant of economic growth in Nigeria.

Sanchez (2005) study the link between exchange rates and interest rate using a simple model that incorporate the role of exchange rate pass through into domestic prices and distinguish between cases of expansionary and contraction any depreciation. The results show that the correlation between exchange rate and interest rates condition on an adverse risk premium stock is negative

Odusola and Akinola (2001) examined the linkage among exchange rate ,interest rate and economic growth in Nigeria from the period of (1990-2001) using a structural VAR model which captured the interaction between exchange rate , interest rate, economic growth evidence from the contemporaneous model shows a contractionary impact of the parallel exchange rate , interest rate , and economic growth.

CHAPTER THREE

3.0 RESEARCH METHODOLOGY

3.1 Research design

This chapter aims at choosing the methods that will be used to determine the impact of exchange rate and interest rate on economic growth. Secondary data will be used to get expected and reliable information and source will be from the CBN statistical bulletin. Thus ordinary least square method (OLS) will be used.

3.2 Model specification

The specification of the econometrics model is based on econometrics theory and on any valuable information relating to the phenomenon being stated it is observed that there exist a relationship between exchange rate, interest rate, investment, government expenditure, current account balance and foreign private investment.

The model is specifying as follows:

RGDP = F (INT, EXCNG, CAB, GEXP, FPI, INVEST.).....(1)

The above equation read that: gross domestic product is a function of interest rate (INT), exchange rate (EXCHR), capital account balance (CAB), Government expenditure (GEXP),investment (INVEST) and foreign private investment (FPI)

However to be able to estimate the equation it was transform into the following.

$RGDP = \beta_0 + \beta_1 INT + \beta_2 EXCH + \beta_3 CAB + \beta_4 GEXP + \beta_5 FPI + \beta_6 INVEST + \mu t$.....(2)

Where GDP is the gross domestic product

INTEREST: is the interest rate

EXCHR: is the exchange rate

INVEST: is the investment

GEXP: is the government expenditures.

CAB : is the capital account balance

FPI: is the foreign private investment

μt: stochastic terms

$\beta 0$: constant

$\beta 1, \beta 2, \beta 3, \beta 4, \beta 5, \beta 6$: independent variables

As stated in the above equation the GDP (gross domestic product) is the dependent variable also known as (the regress) while (the exchange rate, investment, interest rate, government expenditures, current account balance and) are the independent variables. (Also called the regressors)

3.3 Estimation procedure

The method to be used for this research is the ordinary least square (OLS) method because it has the best linear and unbiased estimator (BLUE). Also it is computational procedure is fairly compared to other econometrics techniques

3.4 Method of evaluation

The evaluation of the result will be based on the following;

- **Co-efficient of multiple determinations (R^2)**

Here, the adjusted (R^2) will be used to test for the goodness of fit. The value of R^2 lies between 0 and 1. The closer the R2 is to 1, the better the goodness of fit while the closer of the R2 is to 0, the worse the goodness of fit.

- **t-test**

This is used to find out or test for the statistical significance of the individual regression co-efficient. When this is done, the computed or calculated ratio (tcal) will be compared with the theoretical, tabulated or critical value (t_{tab}) with the n-k degree of freedom.

- **F-test**

A test of the overall significance of the entire variables used in the regression model, it is used to denote whether the joint impact of the explanatory (exogenous/ independent variables) actually have a significant influence on the dependent variable.

- **Durbin – Watson test**

This helps to test the validity of the assumption of non-auto correlated disturbances.

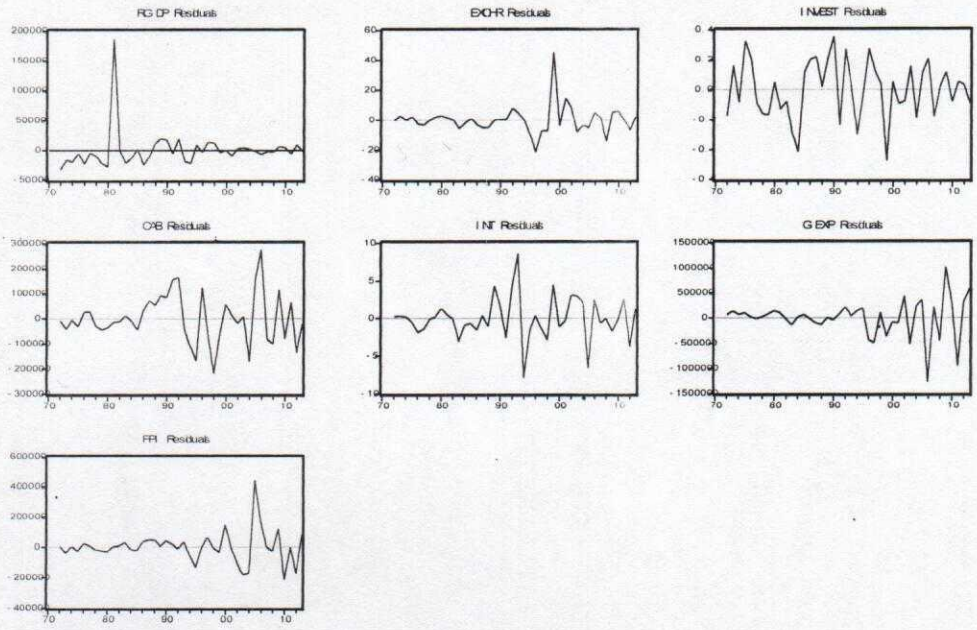
3.5 Data required and source

In order to ensure an adequate and comprehensive research, secondary data of exchange rates, interest rates and economic growth were collected from 1970-2013.

The relevant statistics were sourced or compiled from the CBN statistical Bulletins for the various years.

CHAPTER FOUR

4.0 RESULT ANALYSIS



4.1 DESCRIPTIVE STATISTICS

The descriptive statistics of the variables used in this study are shown in Table. The probabilities of Jarque-Bera test of normality for variables are all greater than 5% level of significance which indicates that the data are normally distributed

	RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
Mean	341338.6	48.84584	0.171941	106146.9	9.861932	504766.4	160461.3
Median							

	332966.6	13.60395	0.171830	24362.15	8.650000	18086.59	17142.15
Maximum	950114.0	153.8616	0.569304	713023.9	26.90000	5727972.	1091928.
Minimum	4219.000	0.546400	-0.475571	-330108.7	2.500000	522.2042	-404.1000
Std. Dev.	257773.5	60.63009	0.226988	202583.6	5.554277	1174793.	292293.8
Skewness	0.510593	0.727084	-0.879362	1.206476	0.800061	2.956117	2.170042
Kurtosis	2.640733	1.700149	4.370550	4.616891	3.399525	11.71574	6.429139
Jarque-Bera	2.148474	6.974400	9.114444	15.46724	4.986691	203.3509	6.09144
Probability	0.341558	0.030586	0.010491	0.000438	0.082633	0.000000	0.000000
Observations	44	44	44	44	44	44	44

The table above shows the descriptive statistics for the dependent and independent variables, RGDP, EXCHR, INVEST, CAB, INT, GEXP and FPI all have a positive mean value which ranges from 0.171941 to 504766.4with a 44 observations. The highest standard deviation of 257773.5 is recorded by RGDP while the least standard deviation of 0.226988 is recorded by INVEST. The Jarque –Bera statistics indicate values greater than 5 percent level of significance indicating that the variables are normally distributed.

4.2 REGRESSION RESULT

The analysis of the result is based on the various expectations of the behavior of the parameters of the regression variables on the dependent (regress and) variable. Therefore for the variable under consideration and their parameter exhibition of the apriori signs which actually conforms to the economics theory is as follows:

Regression result

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49411.53	30442.68	1.623100	0.1131
EXCHR	1535.379	583.5217	2.631229	0.0123
INVEST	-48110.25	65820.24	-0.730934	0.4694
CAB	-0.028744	0.109728	-0.261957	0.7948
INT	14583.21	2840.587	5.133873	0.0000
GEXP	0.097267	0.019066	5.101623	0.0000
FPI	0.220224	0.075651	2.911048	0.0061
R-squared	0.897075	Mean dependent var		341338.6
Adjusted R-squared	0.880384	S.D. dependent var		257773.5
S.E. of regression	89152.28	Akaike info criterion		25.77899
Sum squared resid	2.94E+11	Schwarz criterion		26.06284
Log likelihood	-560.1378	F-statistic		53.74742
Durbin-Watson stat	1.541877	Prob(F-statistic)		0.000000

From the result table, the coefficient of EXCHR (1535.379), INT (14583.21), GEXP (0.097267), and FPI (0.220224) shows positive signs which indicate their positive relationship with RGDP. Onwe (2014) while analyzing the impact of fiscal components on economic growth in Nigeria shows that there is negative impact of federal expenditure on economic service and transfer payment on growth of the Nigeria economy and that federal expenditure on administration as well as social and community service has positive impact on economic growth. Also the coefficient of the variables, INVEST (-48110.25) and CAB (-0.028744) indicates negative signs which shows that their negative relationship with the RGDP in the economy during the period under review.

4.3 STATISTICAL CRITERION

Statistically, the t-statistic of the variable under consideration is interpreted based on the following decision rule: if the t values of the variables under consideration are $\leq -2 \geq 2$, it shows that the variable under consideration is statistically significant otherwise they are not. For the variables under consideration:

Variable	t-Statistic	Prob.
C	1.623100	0.1131
EXCHR	2.631229	0.0123
INVEST	-0.730934	0.4694
CAB	-0.261957	0.7948
INT	5.133873	0.0000
GEXP	5.101623	0.0000
FPI	2.911048	0.0061

The result show that four variables, EXCHR, INT, GEXP and FPI exhibited values that is greater than positive two and less than the negative two. This shows that the variables are statically significant, while the other variables are not significant statistically.

The F-statistic is interpreted following this decision: if F-cal is greater that the F tabulated = if F-cal> F-tab reject otherwise accept. It follows the following assumptions:

$V_1 = K - 1$

$V_2 = N - K$

where

K = number of parameter

N = number of observation

For the variable under consideration:

K-1 6-1= 5

N-K =44-6=38

The F-cal (5, 38) = 53.74742 while the F- tabulated (5, 38) = 3.70

Decision: Since the F-calculated is greater that the F- tabulated, it shows that the overall estimate of the regression has a good fit and is statistically significant.

The R^2 - (R-squared) which measures the overall goodness of fit of the entire regression shows the value as follows: 0.897075 = 89%, while the adjusted R^2 (0.880384)=88%, shows that the independent variables explain the dependent variable to the time of 88%. Also the Durbin Watson (DW) statistics DW = 1.541877 which is greater than the R^2 shows that the overall regression is statistically significance.

4.4 ECONOMETRICS CRITERION

4.4.1 UNIT ROOT

In literature, most time series variables are non-stationary and using non-stationary variables in the model might lead to spurious regression (Granger 1969). The first or second differenced terms of most variables will usually be stationary. Using the Augmented Dickey Fuller (ADF) test for the unit root for the levels as follows:

ADF statistics

Variable	I(0)	I(1)
RGDP	3.534539	-2.818243
EXCHR	1.152835	-3.606467
FPI	-1.456354	-3.853718
INVEST	-2.798256	-7.49408
CAB	-2.760268	-12.11069
GEXP	4.860623	-5.508174
INT	-0.579730	-6.271898

The assumption is that if the Absolute value of the ADF test is greater than the critical 5%, or 1 %value, then the result concludes that it is stationary at either of the orders. The result obtained indicates that all the variables under consideration are integrated of order one at 5% level of significance. Therefore a co integration test would be conducted.

4.5 COINTEGRATION TEST

When a linear combination of variables that are I (1) produces a stationary series, then the variables may need to be co integrated. This means that a long-run relationship may exist among them, which connotes that they may wander from one another in the short-run but in the long-run they will move together. To establish whether long-run relationship exists among the variables or not, co integration tests are conducted by using the

multivariate procedure developed by Johansen (1988) and Johansen and Juselius (1990). The nature of the estimator means that the estimates are robust to simultaneity bias, and it is robust to departure from normality (Johansen, 1995). Johansen method detects a number of co integrating vectors in non-stationary time series. It allows for hypothesis testing regarding the elements of co-integrating vectors and loading matrix. The results of the conducted Johansen tests for co integration amongst the variables is specifies in table below:

Co integration test

	Likelihood	5 Percent	1 Percent	Hypothesized
Eigenvalue	Ratio	Critical Value	Critical Value	No. of CE(s)
0.823077	197.7632	109.99	119.80	None **
0.775107	126.7496	82.49	90.45	At most 1 **
0.530278	65.57226	59.46	66.52	At most 2 *
0.370828	34.59205	39.89	45.58	At most 3
0.211864	15.59470	24.31	29.75	At most 4
0.130308	5.833245	12.53	16.31	At most 5
0.002655	0.108992	3.84	6.51	At most 6

The results indicate that there are at most three co integrating vectors. Using the trace likelihood ratio, the results point out that the null hypothesis of no co integration among the variables is rejected in favour of the alternative hypothesis up to three co integrating equations at 5% significant level because their values exceeded the critical values. This means there are at least three integrating equations, which implies that a long-run relationship exists among the variables and the coefficients of estimated regression can be taken as equilibrium

values.

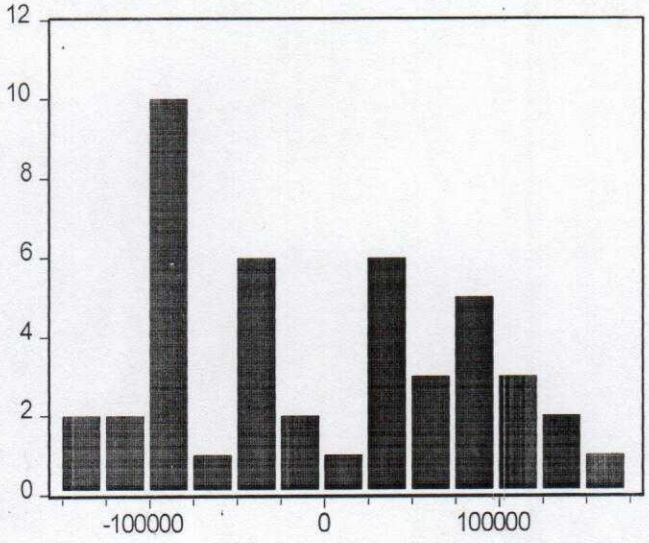
Pair wise Granger Causality Tests			
Null Hypothesis:	Obs	F-Statistic	Probability
EXCHR does not Granger Cause LOG(GDP)	42	0.60827	0.54964
LOG(GDP) does not Granger Cause EXCHR		4.25085	0.02179
LOG(INVEST) does not Granger Cause LOG(GDP)	27	2.16667	0.13838
LOG(GDP) does not Granger Cause LOG(INVEST)		3.20912	0.05985
LOG(CAB) does not Granger Cause LOG(GDP)	26	2.76495	0.08592
LOG(GDP) does not Granger Cause LOG(CAB)		0.30315	0.74167
INT does not Granger Cause LOG(GDP)	42	8.18905	0.00114
LOG(GDP) does not Granger Cause INT		0.13589	0.87337
LOG(GEXP) does not Granger Cause LOG(GDP)	42	0.11888	0.88825
LOG(GDP) does not Granger Cause LOG(GEXP)		2.05533	0.14242
OPEN does not Granger Cause LOG(GDP)	42	0.57041	0.57019
LOG(GDP) does not Granger Cause OPEN		1.87058	0.16831

From the table, the causality test result indicates a unidirectional causality existing from GDP to exchange rate. This implies that GDP granger causes exchange rate during the period under review. The result table equally indicate a unidirectional causality from GDP to LOG (INVEST). The implication is that GDP granger causes investment during the period under review. From the obtained result, there is no direction of causality between LOG (CAB) and LOG (GDP). There exists unidirectional causality running from INT to LOG(GDP). This indicates that interest rate granger causes GPD. From the obtained result, there is no directional causality between LOG(GEXP) and LOG(GDP)

4.6 NORMALITY TEST

Under the normality assumption, if the Chi –Square calculated is less than the Chi-Square tabulated, then the error term is normally distributed.

Normality test



Series: Residuals	
Sample 1970 2013	
Observations 44	
Mean	3.41E-11
Median	-13437.32
Maximum	156954.5
Minimum	-140282.8
Std. Dev.	82698.78
Skewness	0.136376
Kurtosis	1.762446
Jarque-Bera	2.944212
Probability	0.229442

From the data result above, it shows that the Chi-Square calculated ïs (2.944212); also Chi-Square tabulated is normally given as 5.9944. Since the Chi-Square calculated (Jarque-Bera(2.944212) is less than the Chi-Square tabulated 5.9944, it shows that the error term is normally distributed.

4.7 MULTICOLINEARARITY TEST

In the multicolinearity, we test the entire variable in order to ascertain whether they are collated and their degrees of correlation. This also measures their degrees for relationship with the dependent variable. We test the variables to ascertain the degree of relationship that exist between the independent variables and the

dependent variable. For the variables under consideration, the values obtained are as follows:

Correlation matrix

	RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
RGDP	1.000000	0.879022	-0.001467	0.508750	0.348190	0.757073	0.584855
EXCHR	0.879022	1.000000	0.004913	0.684947	0.176201	0.691151	0.688073
INVEST	-0.001467	0.004913	1.000000	0.253409	0.081461	-0.028616	0.127887
CAB	0.508750	0.684947	0.253409	1.000000	0.005121	0.295531	0.649154
INT	0.348190	0.176201	0.081461	0.005121	1.000000	-0.014292	-0.079156
GEXP	0.757073	0.691151	-0.028616	0.295531	-0.014292	1.000000	0.296890
FPI	0.584855	0.688073	0.127887	0.649154	-0.079156	0.296890	1.000000

The correlation result shows that our focal variables, EXCHR, CAB, INT, GEXP, and FPI have positive relationships with the RGDP. The relationships are 87%, 50%, 34%, 75% and 58 % respectively. This shows that the variables impacted on the economic growth of the economy positively. While the variable, INVEST

indicate negative signs with 001%. It implies that during the period under review, the overall investment in the economy contributed little to the nation's economic incidence.

4.8 HETROSCEDASTICITY TEST

For the hetroscedasticity test, it is a test ascertaining the level of distribution of the errors. The following decisions rule is therefore made: if the X^2 (Chi Square) calculated is less that the X^2 (chi-Square) tabulated, we accept Ho and concluded that the error term is hormosdedastic otherwise we reject.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.38E+10	3.25E+09	4.230631	0.0002
EXCHR	1.85E+08	1.71E+08	1.082605	0.2873
EXCHR^2	-850058.4	1242071.	-0.684388	0.4988
INVEST	-1.00E+09	4.42E+09	-0.226735	0.8221
INVEST^2	-1.90E+10	1.15E+10	-1.655239	0.1080
CAB	-1684.415	9922.664	-0.169754	0.8663
CAB^2	-0.016689	0.015237	-1.095298	0.2818
INT	-1.36E+09	6.31E+08	-2.152113	0.0393
INT^2	47364640	22958706	2.063036	0.0476
GEXP	-917.2791	4863.925	-0.188588	0.8516
GEXP^2	2.10E-05	0.000707	0.029717	0.9765
FPI	2961.380	26639.19	0.111166	0.9122
FPI^2	-0.009247	0.022852	-0.404648	0.6885

Hetroscedasticity test

White Heteroskedasticity Test:				
F-statistic 2.208473	Probability 0.074515			
Obs*R-squared 17.87993	Probability 0.119385			
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.762879	3.616981	-0.763863	0.4568
EXCHR	0.052283	0.019505	2.680531	0.0171
EXCHR^2	-0.000313	0.000138	-2.268760	0.0385
LOG(INVEST)	0.773194	0.921828	0.838762	0.4148
(LOG(INVEST))^2	0.211027	0.238705	0.884053	0.3906
LOG(CAB)	0.467613	0.368261	1.269788	0.2235
(LOG(CAB))^2	-0.037377	0.022474	-1.663127	0.1170
INT	-0.029885	0.126476	-0.236291	0.8164
INT^2	-0.001886	0.005116	-0.368661	0.7175
LOG(GEXP)	0.281926	0.855246	0.329643	0.7462
(LOG(GEXP))^2	-0.007117	0.040548	-0.175520	0.8630
OPEN	0.020199	0.030818	0.655438	0.5221
OPEN^2	-5.03E-06	0.000337	-0.014916	0.9883

For the variables under consideration, the X^2- cal. under 12 degrees of freedom, chi square (12) = 16.31422 and the chi-square (12) tabulated = 5.22603.

DECISION:

Since the X^2 calculated > X^2 tabulated = X^2 cal = 16.31422 > X^2 tabulated = 5.22603, we conclude that the error term of the variable under consideration is hetroscedastic

CHAPTER FIVE

5.0 SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 SUMMARY

This research work investigated the impact of Exchange rate and Interest rate on economic growth in Nigeria, with the objective of determining the appropriate regime of both Interest and Exchange rates that will enhance economic growth in Nigeria. The study emphasized the importance of Exchange and Interest rate in a modern economy as interest rate plays a major role in saving decisions of households and investment decisions of the private sectors, while exchange rate are often regulated by the monetary authority with the aim of achieving internal and external balance in the macroeconomic sphere of the economy. The major problem identified in the study is the fact that our interest rate is still high at two digits which discourages investments and hence growth, while our naira has continually fell against other currencies like the US dollar, the British pounds, and Euro without the country reaping the benefits of such appreciation of exchange rate in terms of having more of goods being demanded in the international markets which should have earned us more foreign exchange due to our mono-cultural Oil based economy, neither has it attracted more foreign direct investments and the objectives of the study is to proffer policy solutions that would enhance the growth of the Nigeria economy. The purchasing power parity theory explain the exchange rate between two currencies which will be equal to the relative national price level the theory also discuss the assumption about the behaviour of importers and exporters and their contribution to economic growth

5.2 CONCLUSION

In conclusion the descriptive statistics of the variables conducted indicate that all the variables under consideration have positive mean. From the result, the highest standard deviation is recorded by the RGDP while the least standard deviation is recorded by INVEST. The jarque –Bera test result indicate that variables under consideration are not normally distributed.

The OLS regression results obtained shows that the co efficient of the variables EXCHR, INT, GEXP, and FPI exhibits positive signs to the RGDP. From the result table, it was observed that coefficient of INVEST, and CAB showed negative signs to the RGDP. Statistically, the t – values of the variables under consideration indicate that four of the variables EXCHR, INT, GEXP and FPI statistically significant at 5% level of significant. The f- statistic result indicates that the overall estimate of the regression has a good fit. The coefficient of determination R^2 result shows that the independent variables explain the dependent variables to the tune of 88%. Also Durbin Watson statistics result of DW =1.541877 shows that the overall estimate of the regression is significant statistically. The result of the unit root test using (ADF) test indicates that all the variables under consideration are integrated in order one at 5% level of significant. The result of the Johansen co integration test indicate that there are at most three co integrating vectors which means that at least three of the variables have long run relationship.

The normality test indicates that the Chi square calculated using Jarque Bera is less than the Chi square tabulated, this shows that the error term is normally distributed. Also the multicolinearity test shows that five variables which include EXCHR, CAB, INT, GEXP and FPI have positive relationship with the RGDP. The

means that the variables impacted on the economic growth positively. But the variables INVEST shows negative signs which implies that the overall investment in the country contributed little to the nation's economic growth. The Heteroscedasticity test reveal that X^2 Chi square calculated is less than the x^2 chi square tabulated, this indicate that in this test H_0 is accepted and hence the error term is hormosdedastic then we reject H_0

5.3 RECOMENDATION

from the analysis realized and listed problems in this research work the following policy recommendation can be made

- Monetary authority should ensure stable interest rate regime which can make both foreign and local investors have confidence to invest in the economy
- Government should improve on its provision of infrastructure facilities in order to reduce cost of production and increase exportation, this will add to the country's national income and in general promote the real GDP
- Government should take actions towards revamping our Agricultural and Manufacturing sectors so that we can export more Nigerian goods which will be more attractive in the international market and hence earn us more foreign exchange and increase demand for our goods which will also increase investment and economic growth in Nigeria.
- The study also found that government expenditures should have positive influence on growth, therefore government should increase its expenditures towards diversification of the economy

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APPENDIX

YEAR	INT	EXCHR	CAB	RGDP	INVEST	FPI	INT
1970	4	0.7143	-50	4219	0.059719	128.6	4
1971	4	0.6955	-229.4	4715.5	0.373707	142.8	4
1972	4	0.6579	-322.7	4892.8	0.087842	297.8	4
1973	4	0.6579	52.7	5310	0.351557	186.3	4
1974	4	0.6299	4671.5	15919.7	0.165162	181.6	4
1975	3.5	0.6159	42.6	27172.02	0.529591	253	3.5
1976	2.5	0.6265	-258.4	29146.51	0.479326	212.5	2.5
1977	3	0.6466	-647.5	31520.34	0.15022	245.5	3
1978	4	0.606	-1157.4	29212.35	-0.00373	134.4	4
1979	4	0.5957	9427.3	29947.99	-0.03315	184.3	4
1980	5	0.5464	13057.9	31546.76	0.189659	-404.1	5
1981	5	0.61	10070.3	251052.3	0.064549	334.7	5
1982	7	0.6729	7980.9	246726.6	-0.06153	290	7
1983	7	0.7241	6752.3	230380.8	-0.31518	264.3	7
1984	8.5	0.7649	8234.3	227254.7	-0.46499	360.4	8.5
1985	8.5	0.8938	10738.9	253013.3	0.045423	434.1	8.5
1986	8.5	2.0206	8006.6	257784.4	0.255711	887.4	8.5
1987	11.75	4.0179	17138.2	255997	0.322783	6805.4	11.75
1988	11.75	4.5367	31586.1	275409.6	0.165846	4330	11.75
1989	17.5	7.3916	59112	295090.8	0.343238	12258.6	17.5
1990	17.5	8.0378	79810.1	328606.1	0.569305	4250.8	17.5
1991	15	9.9095	51969.8	328644.5	0.071744	6321.2	15
1992	21	17.2984	93680.5	337288.6	0.435225	51314.9	21
1993	26.9	22.0511	-34414.7	342540.5	0.297509	29283.3	26.9
1994	12.5	21.8861	-52304.3	345228.5	0.036406	22025.7	12.5
1995	12.5	21.8861	-186085	352646.2	0.245685	70155.6	12.5
1996	12.25	21.8861	240180	367218.1	0.375008	99235.7	12.25
1997	12	21.8861	36033.6	377830.8	0.370911	105666.9	12
1998	12.95	21.8861	-330109	388468.1	0.112568	80111.5	12.95
1999	17	92.6934	46336.2	393107.2	-0.47557	93808.2	17
2000	12	102.1052	713023.9	412332	0.375448	167031.3	12
2001	12.95	111.9433	242901.3	431783.2	0.282837	224952.6	12.95
2002	18.88	120.9702	40224.9	451785.7	-0.04384	250014	18.88
2003	15.02	129.3565	507117.1	495007.2	0.271492	281944.1	15.02
2004	14.21	133.5004	273671	527576	0.177814	271765.6	14.21
2005	7	132.147	390393.1	561931.4	0.208702	770228.2	7
2006	8.8	128.6516	610070.5	595821.6	0.533779	984812.3	8.8
2007	6.91	125.8331	258286.2	634251.1	0.213889	1091928	6.91
2008	7.03	118.5669	215309	672202.6	0.058388	807588.7	7.03
2009	3.72	148.8867	558593.8	718977.3	0.184818	969473.8	3.72
2010	6.6	150.298	351875.5	776332.2	0.121603	86959.85	6.6
2011	12.78	153.8616	111935.7	834000.8	0.153211	130419.8	12.78

2012	9.69	152.0798	81502.34	888893	0.137407	195992	9.69
2013	11.235	152.9707	186254.4	950114	0.145309	237483.3	11.235

Method: Least Squares
Date: 08/13/15 Time: 16:02
Sample: 1970 2013
Included observations: 44

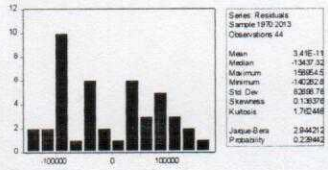
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	49411.53	30442.68	1.623100	0.1131
EXCHR	1535.379	583.5217	2.631229	0.0123
INVEST	-48110.25	65820.24	-0.730934	0.4694
CAB	-0.028744	0.109728	-0.261957	0.7948
INT	14583.21	2840.587	5.133873	0.0000
GEXP	0.097267	0.019066	5.101623	0.0000
FPI	0.220224	0.075651	2.911048	0.0061

R-squared	0.897075	Mean dependent var	341338.6
Adjusted R-squared	0.880384	S.D. dependent var	257773.5
S.E. of regression	89152.28	Akaike info criterion	25.77899
Sum squared resid	2.94E+11	Schwarz criterion	26.06284
Log likelihood	-560.1378	F-statistic	53.74742
Durbin-Watson stat	1.541877	Prob(F-statistic)	0.000000

	RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
Mean	341338.6	48.84584	0.171941	106146.9	9.861932	504766.4	160461.3
Median	332966.6	13.60395	0.171830	24362.15	8.650000	18086.59	17142.15
Maximum	950114.0	153.8616	0.569304	713023.9	26.90000	5727972.	1091928.
Minimum	4219.000	0.546400	-0.475571	-330108.7	2.500000	522.2042	-404.1000
Std. Dev.	257773.5	60.63009	0.226988	202583.6	5.554277	1174793.	292293.8

Skewness	0.510593	0.727084	-0.879362	1.206476	0.800061	2.956117	2.170042
Kurtosis	2.640733	1.700149	4.370550	4.616891	3.399525	11.71574	6.429139
Jarque-Bera	2.148474	6.974400	9.114444	15.46724	4.986691	203.3509	6.09144
Probability	0.341558	0.030586	0.010491	0.000438	0.082633	0.000000	0.000000
Observations	44	44	44	44	44	44	44

Normality test



Multicolinearity

	RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
RGDP	1.000000	0.879022	-0.001467	0.508750	0.348190	0.757073	0.584855
EXCHR	0.879022	1.000000	0.004913	0.684947	0.176201	0.691151	0.688073
INVEST	-0.001467	0.004913	1.000000	0.253409	0.081461	-0.028616	0.127887
CAB	0.508750	0.684947	0.253409	1.000000	0.005121	0.295531	0.649154
INT	0.348190	0.176201	0.081461	0.005121	1.000000	-0.014292	-0.079156
GEXP	0.757073	0.691151	-0.028616	0.295531	-0.014292	1.000000	0.296890
FPI	0.584855	0.688073	0.127887	0.649154	-0.079156	0.296890	1.000000

Hetroscedasticity

White Heteroskedasticity Test:

F-statistic	1.522264	Probability	0.168850
Obs*R-squared	16.31422	Probability	0.177264

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 08/13/15 Time: 16:14
Sample: 1970 2013
Included observations: 44

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.38E+10	3.25E+09	4.230631	0.0002
EXCHR	1.85E+08	1.71E+08	1.082605	0.2873
EXCHR^2	-850058.4	1242071.	-0.684388	0.4988
INVEST	-1.00E+09	4.42E+09	-0.226735	0.8221
INVEST^2	-1.90E+10	1.15E+10	-1.655239	0.1080
CAB	-1684.415	9922.664	-0.169754	0.8663
CAB^2	-0.016689	0.015237	-1.095298	0.2818
INT	-1.36E+09	6.31E+08	-2.152113	0.0393
INT^2	47364640	22958706	2.063036	0.0476
GEXP	-917.2791	4863.925	-0.188588	0.8516
GEXP^2	2.10E-05	0.000707	0.029717	0.9765
FPI	2961.380	26639.19	0.111166	0.9122
FPI^2	-0.009247	0.022852	-0.404648	0.6885
R-squared	0.370778	Mean dependent var		6.68E+09
Adjusted R-squared	0.127208	S.D. dependent var		5.90E+09
S.E. of regression	5.52E+09	Akaike info criterion		47.94015
Sum squared resid	9.43E+20	Schwarz criterion		48.46730
Log likelihood	-1041.683	F-statistic		1.522264
Durbin-Watson stat	2.099169	Prob(F-statistic)		0.168850

Unit root

Order zero

ADF Test Statistic	3.534539	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDP)
Method: Least Squares
Date: 08/13/15 Time: 16:12
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RGDP(-1)	0.060262	0.017050	3.534539	0.0010
D(RGDP(-1))	-0.031936	0.167831	-0.190289	0.8500
R-squared	0.051273	Mean dependent var		22509.49
Adjusted R-squared	0.027555	S.D. dependent var		36806.52
S.E. of regression	36295.88	Akaike info criterion		23.88324
Sum squared resid	5.27E+10	Schwarz criterion		23.96599
Log likelihood	-499.5481	Durbin-Watson stat		2.004862

ADF Test Statistic	-2.818243	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(RGDP,2)
Method: Least Squares
Date: 08/13/15 Time: 16:10
Sample(adjusted): 1973 2013
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(RGDP(-1))	-0.545277	0.193481	-2.818243	0.0075
D(RGDP(-1),2)	-0.181085	0.163359	-1.108507	0.2744

R-squared	0.345675	Mean dependent var	1488.872
Adjusted R-squared	0.328898	S.D. dependent var	50611.01
S.E. of regression	41460.96	Akaike info criterion	24.15044
Sum squared resid	6.70E+10	Schwarz criterion	24.23403
Log likelihood	-493.0841	Durbin-Watson stat	2.042531

Exchr

Order zero

ADF Test Statistic	1.152835	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(EXCHR)
Method: Least Squares
Date: 08/13/15 Time: 16:26
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
EXCHR(-1)	0.031524	0.027345	1.152835	0.2558
D(EXCHR(-1))	0.061291	0.166362	0.368418	0.7145

R-squared	-0.039235	Mean dependent var	3.625600
Adjusted R-squared	-0.065216	S.D. dependent var	12.01983
S.E. of regression	12.40558	Akaike info criterion	7.920618
Sum squared resid	6155.938	Schwarz criterion	8.003364
Log likelihood	-164.3330	Durbin-Watson stat	2.005371

ADF Test Statistic	-3.606467	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(EXCHR,2)
Method: Least Squares
Date: 08/13/15 Time: 16:28
Sample(adjusted): 1973 2013
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(EXCHR(-1))	-0.753885	0.209037	-3.606467	0.0009
D(EXCHR(-1),2)	-0.130148	0.158822	-0.819456	0.4175

R-squared	0.442883	Mean dependent var	0.022646
Adjusted R-squared	0.428598	S.D. dependent var	16.75076
S.E. of regression	12.66209	Akaike info criterion	7.962652
Sum squared resid	6252.810	Schwarz criterion	8.046241
Log likelihood	-161.2344	Durbin-Watson stat	2.013843

Fpi

Order zero

ADF Test Statistic	-1.456354	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FPI)
Method: Least Squares
Date: 08/13/15 Time: 16:28
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
FPI(-1)	-0.117081	0.080393	-1.456354	0.1531
D(FPI(-1))	-0.038530	0.158940	-0.242420	0.8097

R-squared	0.058596	Mean dependent var	5650.964
Adjusted R-squared	0.035061	S.D. dependent var	172194.5
S.E. of regression	169148.9	Akaike info criterion	26.96139
Sum squared resid	1.14E+12	Schwarz criterion	27.04414
Log likelihood	-564.1893	Durbin-Watson stat	1.977350

UnnormalizedCointegrating Coefficients:

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
-1.18E-06	0.003993	-0.336870	-2.87E-06	0.025524	-1.70E-07	1.65E-06
1.83E-06	-0.010745	0.443064	2.95E-06	-0.041778	-1.53E-07	-9.28E-07
-8.77E-07	-0.008701	-0.425997	2.16E-06	0.029096	4.35E-07	8.07E-07
-2.24E-06	-0.002885	-0.776518	1.38E-06	0.055286	4.98E-07	2.43E-07
-1.18E-06	0.001635	0.547605	-6.48E-07	0.001906	2.34E-07	4.88E-07
6.82E-07	0.000561	-0.465908	-1.34E-06	-0.017850	3.28E-08	2.99E-07

6.48E-07	0.004177	0.011855	1.05E-06	-0.025942	-4.81E-07	-8.04E-07

Normalized Cointegrating Coefficients: 1 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	-3385.312	285587.1	2.431978	-21638.45	0.144534	-1.401354
	(1099.82)	(70152.0)	(0.55451)	(1806.23)	(0.07920)	(0.23149)

Log likelihood -2337.375

Normalized Cointegrating Coefficients: 2 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	0.000000	345201.5	3.556003	-20041.00	0.455841	-2.621905
		(190359.)	(2.26159)	(5322.59)	(0.43881)	(1.42374)
0.000000	1.000000	17.60972	0.000332	0.471877	9.20E-05	-0.000361
		(37.2062)	(0.00044)	(1.04032)	(8.6E-05)	(0.00028)

Log likelihood -2306.787

Normalized Cointegrating Coefficients: 3 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	0.000000	0.000000	-90.48838	-199987.7	-18.37650	50.69062
			(1552.44)	(3076124)	(311.446)	(877.718)
0.000000	1.000000	0.000000	-0.004465	-8.707723	-0.000869	0.002359
			(0.07235)	(143.365)	(0.01452)	(0.04091)
0.000000	0.000000	1.000000	0.000272	0.521280	5.46E-05	-0.000154
			(0.00463)	(9.18215)	(0.00093)	(0.00262)

Log likelihood -2291.296

Normalized Cointegrating Coefficients: 4 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	0.000000	0.000000	0.000000	225691.3	8.516480	25.62193
				(7941500)	(281.623)	(840.385)
0.000000	1.000000	0.000000	0.000000	12.29879	0.000458	0.001122
				(394.440)	(0.01399)	(0.04174)
0.000000	0.000000	1.000000	0.000000	-0.760311	-2.64E-05	-7.90E-05
				(24.0419)	(0.00085)	(0.00254)

0.000000	0.000000	0.000000	1.000000	4704.239	0.297198	-0.277038
				(116843.)	(4.14351)	(12.3646)

Log likelihood -2281.798

Normalized Cointegrating Coefficients: 5 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	0.000000	0.000000	0.000000	0.000000	0.337486	1.294107
					(0.68292)	(1.98023)
0.000000	1.000000	0.000000	0.000000	0.000000	1.27E-05	-0.000204
					(2.3E-05)	(6.8E-05)
0.000000	0.000000	1.000000	0.000000	0.000000	1.14E-06	2.99E-06
					(1.3E-06)	(3.9E-06)
0.000000	0.000000	0.000000	1.000000	0.000000	0.126718	-0.784119
					(0.08022)	(0.23260)
0.000000	0.000000	0.000000	0.000000	1.000000	3.62E-05	0.000108
					(4.3E-05)	(0.00012)

Log likelihood -2276.917

Normalized Cointegrating Coefficients: 6 Cointegrating Equation(s)

RGDP	EXCHR	INVEST	CAB	INT	GEXP	FPI
1.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.765044
						(1.17433)
0.000000	1.000000	0.000000	0.000000	0.000000	0.000000	-0.000224
						(7.3E-05)
0.000000	0.000000	1.000000	0.000000	0.000000	0.000000	1.20E-06
						(1.6E-06)
0.000000	0.000000	0.000000	1.000000	0.000000	0.000000	-0.982769
						(0.40347)
0.000000	0.000000	0.000000	0.000000	1.000000	0.000000	5.10E-05
						(5.7E-05)
0.000000	0.000000	0.000000	0.000000	0.000000	1.000000	1.567658
						(2.05995)

Log likelihood -2274.055

Pairwise Granger Causality Tests
Date: 08/13/15 Time: 16:46
Sample: 1970 2013
Lags: 1

Null Hypothesis:	Obs	F-Statistic	Probability
EXCHR does not Granger Cause RGDP	43	2.67941	0.10950
RGDP does not Granger Cause EXCHR		1.49092	0.22922

INVEST does not Granger Cause RGDP	43	0.00097	0.97530
RGDP does not Granger Cause INVEST		0.03194	0.85905
CAB does not Granger Cause RGDP	43	0.48480	0.49028
RGDP does not Granger Cause CAB		5.25999	0.02715
INT does not Granger Cause RGDP	43	1.07110	0.30691
RGDP does not Granger Cause INT		0.59308	0.44575
GEXP does not Granger Cause RGDP	43	2.11089	0.15406
RGDP does not Granger Cause GEXP		2.33079	0.13471
FPI does not Granger Cause RGDP	43	0.52873	0.47138
RGDP does not Granger Cause FPI		0.99497	0.32453
INVEST does not Granger Cause EXCHR	43	0.48851	0.48864
EXCHR does not Granger Cause INVEST		0.18319	0.67094
CAB does not Granger Cause EXCHR	43	5.87049	0.02002
EXCHR does not Granger Cause CAB		18.2782	0.00012
INT does not Granger Cause EXCHR	43	1.04489	0.31283
EXCHR does not Granger Cause INT		0.06701	0.79706
GEXP does not Granger Cause EXCHR	43	1.32331	0.25683
EXCHR does not Granger Cause GEXP		0.84423	0.36370
FPI does not Granger Cause EXCHR	43	0.03067	0.86185
EXCHR does not Granger Cause FPI		3.27695	0.07778
CAB does not Granger Cause INVEST	43	0.89244	0.35049
INVEST does not Granger Cause CAB		7.72652	0.00825
INT does not Granger Cause INVEST	43	0.23815	0.62821
INVEST does not Granger Cause INT		0.17574	0.67731
GEXP does not Granger Cause INVEST	43	0.00555	0.94097
INVEST does not Granger Cause GEXP		6.7E-05	0.99350
FPI does not Granger Cause INVEST	43	0.01164	0.91463
INVEST does not Granger Cause FPI		0.00018	0.98924
INT does not Granger Cause CAB	43	0.98513	0.32690
CAB does not Granger Cause INT		0.06037	0.80716
GEXP does not Granger Cause CAB	43	1.24958	0.27030
CAB does not Granger Cause GEXP		0.01885	0.89148
FPI does not Granger Cause CAB	43	9.00734	0.00462
CAB does not Granger Cause FPI		0.16511	0.68666
GEXP does not Granger Cause INT	43	0.21435	0.64589
INT does not Granger Cause GEXP		0.40214	0.52959
FPI does not Granger Cause INT	43	0.36047	0.55163
INT does not Granger Cause FPI		1.52323	0.22433
FPI does not Granger Cause GEXP	43	0.03177	0.85943
GEXP does not Granger Cause FPI		0.17622	0.67689

ADF Test Statistic	-3.853718	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(FPI,2)
Method: Least Squares
Date: 08/13/15 Time: 23:14
Sample(adjusted): 1973 2013
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(FPI(-1))	-0.902977	0.234313	-3.853718	0.0004
D(FPI(-1),2)	-0.177943	0.158018	-1.126099	0.2670

R-squared	0.563299	Mean dependent var	1008.204
Adjusted R-squared	0.552102	S.D. dependent var	258492.5
S.E. of regression	172996.7	Akaike info criterion	27.00748
Sum squared resid	1.17E+12	Schwarz criterion	27.09107
Log likelihood	-551.6534	Durbin-Watson stat	1.944128

ADF Test Statistic	-2.798256	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INVEST)
Method: Least Squares
Date: 08/13/15 Time: 23:19
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INVEST(-1)	-0.417029	0.149032	-2.798256	0.0079
D(INVEST(-1))	-0.117505	0.153780	-0.764111	0.4493

R-squared	0.255608	Mean dependent var	-0.005438
Adjusted R-squared	0.236998	S.D. dependent var	0.278479
S.E. of regression	0.243251	Akaike info criterion	0.057006
Sum squared resid	2.366851	Schwarz criterion	0.139752
Log likelihood	0.802871	Durbin-Watson stat	2.028842

ADF Test Statistic	-7.494080	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INVEST,2)
Method: Least Squares
Date: 08/13/15 Time: 23:20
Sample(adjusted): 1973 2013

Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INVEST(-1))	-1.794221	0.239418	-7.494080	0.0000
D(INVEST(-1),2)	0.362961	0.145568	2.493412	0.0170

R-squared	0.707481	Mean dependent var	0.007165
Adjusted R-squared	0.699980	S.D. dependent var	0.453952
S.E. of regression	0.248648	Akaike info criterion	0.101991
Sum squared resid	2.411200	Schwarz criterion	0.185579
Log likelihood	-0.090807	Durbin-Watson stat	2.026867

ADF Test Statistic	-2.760268	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CAB)
Method: Least Squares
Date: 08/13/15 Time: 23:21
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CAB(-1)	-0.408599	0.148029	-2.760268	0.0087
D(CAB(-1))	-0.041936	0.159233	-0.263359	0.7936

R-squared	0.210595	Mean dependent var	4440.090
Adjusted R-squared	0.190860	S.D. dependent var	217172.4
S.E. of regression	195351.4	Akaike info criterion	27.24944
Sum squared resid	1.53E+12	Schwarz criterion	27.33218
Log likelihood	-570.2381	Durbin-Watson stat	2.042616

ADF Test Statistic	-12.11069	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(CAB,2)
Method: Least Squares
Date: 08/13/15 Time: 23:22
Sample(adjusted): 1973 2013
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(CAB(-1))	-2.141474	0.176825	-12.11069	0.0000
D(CAB(-1),2)	0.718337	0.112056	6.410493	0.0000

R-squared	0.815955	Mean dependent var	2557.204
Adjusted R-squared	0.811236	S.D. dependent var	346694.0
S.E. of regression	150628.1	Akaike info criterion	26.73057

Sum squared resid	8.85E+11	Schwarz criterion	26.81415
Log likelihood	-545.9766	Durbin-Watson stat	2.023055

ADF Test Statistic	4.860623	1% Critical Value*	-2.6182
		5% Critical Value	-1.9488
		10% Critical Value	-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root..

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GEXP)
Method: Least Squares
Date: 08/13/15 Time: 23:25
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEXP(-1)	0.473355	0.097386	4.860623	0.0000
D(GEXP(-1))	-0.600374	0.194801	-3.081985	0.0037

R-squared	0.329819	Mean dependent var	136367.8
Adjusted R-squared	0.313064	S.D. dependent var	532071.4
S.E. of regression	440989.3	Akaike info criterion	28.87788
Sum squared resid	7.78E+12	Schwarz criterion	28.96062
Log likelihood	-604.4354	Durbin-Watson stat	2.201925

ADF Test Statistic	-5.508174	1% Critical Value*	-2.6227
		5% Critical Value	-1.9495
		10% Critical Value	-1.6202

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(GEXP)
Method: Least Squares
Date: 08/13/15 Time: 23:26
Sample(adjusted): 1975 2013
Included observations: 39 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
GEXP(-1)	1.386137	0.235852	-5.508174	0.0000
D(GEXP(-2))	-1.482588	0.338536	-4.379407	0.0001

R-squared	0.570421	Mean dependent var	146851.5
Adjusted R-squared	0.519883	S.D. dependent var	551244.8
S.E. of regression	381960.3	Akaike info criterion	28.66323
Sum squared resid	4.96E+12	Schwarz criterion	28.87651
Log likelihood	-553.9330	Durbin-Watson stat	1.794754

ADF Test Statistic	-0.579730	1% Critical Value*	-2.6182

5% Critical Value		-1.9488
10% Critical Value		-1.6199

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INT)
Method: Least Squares
Date: 08/13/15 Time: 23:29
Sample(adjusted): 1972 2013
Included observations: 42 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
INT(-1)	-0.028952	0.049941	-0.579730	0.5653
D(INT(-1))	-0.209962	0.156321	-1.343149	0.1868

R-squared	0.056874	Mean dependent var	0.172262
Adjusted R-squared	0.033296	S.D. dependent var	3.691752
S.E. of regression	3.629772	Akaike info criterion	5.462665
Sum squared resid	527.0099	Schwarz criterion	5.545411
Log likelihood	-112.7160	Durbin-Watson stat	2.093584

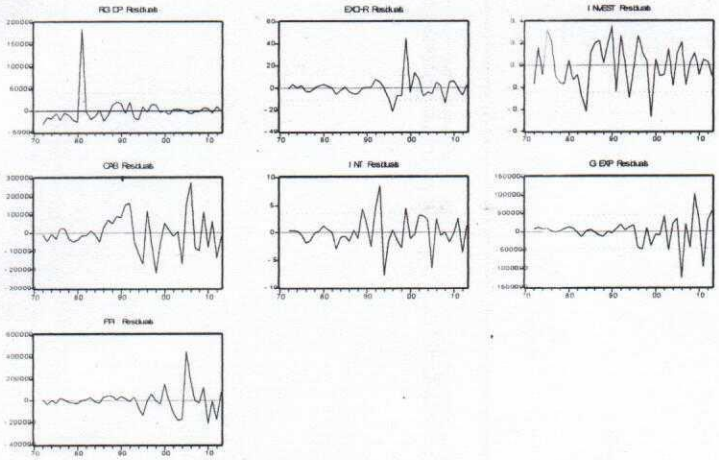
ADF Test Statistic	-6.271898	1% Critical Value*	-2.6196
		5% Critical Value	-1.9490
		10% Critical Value	-1.6200

*MacKinnon critical values for rejection of hypothesis of a unit root.

Augmented Dickey-Fuller Test Equation
Dependent Variable: D(INT,2)
Method: Least Squares
Date: 08/13/15 Time: 23:30
Sample(adjusted): 1973 2013
Included observations: 41 after adjusting endpoints

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(INT(-1))	-1.528278	0.243671	-6.271898	0.0000
D(INT(-1),2)	0.247818	0.156680	1.581679	0.1218

R-squared	0.635525	Mean dependent var	0.037683
Adjusted R-squared	0.626180	S.D. dependent var	5.852776
S.E. of regression	3.578436	Akaike info criterion	5.435280
Sum squared resid	499.4031	Schwarz criterion	5.518868
Log likelihood	-109.4232	Durbin-Watson stat	1.970797


RGDP Residuals
EXCHR Residuals
INVEST Residuals
CPI Residuals
INF Residuals
GEXP Residuals
PR Residuals