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Response of Palm Kernel to Selected Macroeconomics Policy Variables in Nigeria

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ABSTRACT
The study examined the response of palm kernel to selected macroeconomic policy variables in Nigeria. The objectives were to analyse the production, export and absorption trend of palm kernel and the effect of macroeconomic variables on the production, export, and absorption of palm kernel. The study was limited to palm kernel within the period from 1986 to 2010. Secondary data was used in the study. The major analytical tool for this study was the ordinary least squares multiple regression technique. In the Analyses of performance trend, Palm kernel measured highest between (2006 - 2010) with output value of 6,123.92 tones. In export and absorption trend, Palm kernel measured highest in export between (2006 - 2010) with average export of 168,081.8 tones and highest average absorption of 8,694,346.6 tones between (2006 - 2010). The multiple regression result on effect of the macroeconomic variables on output of Palm Kernel, the exponential function was the chosen equation. The lead equation with R^2 value of 0.375 and Adjusted R^2 value of 0.166. The effect of macroeconomic variables on export of Palm Kernel, the lead equation was the linear functional form. The R^2 value was 0.318 and adjusted R^2 value of 0.91. On the effect of the macroeconomic variables on Absorption of Palm Kernel the lead equation was the linear function. It gave R^2 of 0.589 and adjusted R^2 value of 0.419.Based on the research findings, some recommendations were made.
Keywords: Palm Kernel, Macroeconomic Variables, Nigeria.

INTRODUCTION

In the 1960s, agricultural sector was the most important in terms of its contributions to domestic production, employment and foreign exchange earnings. The situation remained almost the same three decades later with the exception that it is no longer the principal foreign exchange earner, a role now being played by crude oil. The sector was stagnant during the oil boom period of the 1970s, which accounted largely for the declining share of agriculture's contributions. The trend in the share of agriculture GDP shows a substantial variation and long-term decline from 60 percent in the early 1960s through 48.8 percent in the 1970s, 22.2 percent in the 1980s and 26 percent in 2000 (CBN, 2004). Unstable and often inappropriate economic policies (of pricing, trade and exchange rate),the relative neglect of the sector and the negative impact of the oil boom were also important factors responsible for the decline in its contributions.

The leading cash crops are cocoa, cotton, groundnuts (peanuts), palm oil, palm kernel, benni seed, and rubber. Nigeria was the world's leading exporter of palm oil, until overtaken by Malaysia in 1971. The production of oil palm products has increased somewhat since 2000, however the country is still heavily dependent on import in order to satisfy domestic needs. Like other cash-crops, output of palm products suffered from labour shortages, inefficient traditional harvesting methods, and lack of vital inputs and low levels of capital investment. However, a sharp reduction in imports and large-scale replanting resulted in

a substantial increase in production during the mid-nineteen-eighties. Trade liberalization and the exchange rate policies adopted in the nineteen-eighties have contributed to the improvement in palm oil production. Also there have been substantial investments in oil-milling facilities to produce vegetable oil for domestic use and since 2000 oil palm products continued to increase for the reasons stated above.

As at 1984, the growth rate of the agricultural sector at constant basic prices had a negative figure of -5.20 percent yet the crop subsector which was the major source of food still accounted for about 30 percent of the Gross Domestic Products (GDP), livestock about five percent, forestry and wildlife about 1.3 percent and fisheries accounted 1.2 percent (CBN 2010). In a bid to mitigate the negative growth effect of the agriculture, manufacturing and oil sectors, the government introduced Structural Adjustment Programme (SAP) in 1986. The policy introduced deregulation of interest rates, which enabled interest rates to be determined by financial market forces rather than being determined by government. As at 1990, the growth rate of the economy had grown from a negative figure to a positive figure of 4.30 percent and in year 2003, the growth rate was 6.50 percent (CBN, 2004).

Agricultural production in Nigeria is determined by the functions of macroeconomic environment, other factors such as political instability, civil unrest and unfavourable policies have also been found to affect agricultural output (Eyo, 2008). The combined effects of all these factors either cause a fall or rise in commercial food production, exportation and food supplies. According to Morgues *et al* (2008), the major constraints to agricultural production include limited use of modern agricultural inputs, declining agricultural terms of trade and international debt, seasonal production bottlenecks, the risks of depending on market, lack of government financial support, government indifference and high levels of taxation, low food prices, poverty and lack of capital, land tenure systems, problems of competition with cheap food imports and food aid as well as the general world recession. Agricultural output, inflation, subsidy, exchange rate, food import and export influence the GDP of the agricultural sector at various degrees. Nwachukwu et al, (2008) suggested that government should provide credit finance incentives to farmers to bring about reduction in production cost and thus encourage increased output.

As stated by Falusi(2005) cited from (Helleiner 1966, Oluwasanmi, 1966, Olayide&Olatunbosun, 1972), "that prior to the advent of the civil war in 1967, Nigerian agriculture played its role satisfactorily. Agriculture contributed well over 50 percent of the GDP, provided (on a self sufficient basis) the food and fibre needs of the population, accounted for more than 75 percent of the labour force, supplied raw materials for the fledging agro-industries, provided over 70 percent of the foreign exchange earnings and contributed significantly to public revenue used to develop the other sectors of the economy".

According to Falusi (1978) and Oyejide (1986) Nigerian agriculture suffered stagnation and decline in the 70s and up to the mid-80s. The characteristic features of Nigerian agriculture during this period were low/negative growth rates, high food imports, high and rising food prices, reducing share in labour force and a drastic fall in contribution to foreign exchange earnings.

Again CBN (2000) gave a number of reasons for the poor performance of Nigerian agriculture during this period. These included poor macroeconomic and sectoral policies, inadequate funding, inadequate research support, weak technology generation and delivery system, deficiencies in input supply and marketing, declining terms of trade in the world market, poor development of rural infrastructural facilities and manpower constraints.

The fundamental objectives of macroeconomic policy in Nigeria are economic growth and development, price stability, self reliance and social equity. However, it was evident by 1981 that the above objectives could not be attained with the performance of the economy which depends solely on non-renewable natural resources – oil, with its attendant shocks generated by the oil glut in the world market.

Many policy options were tried to correct the distortions in the structure of the economy, but by and large, it was aimed at stabilizing and not adjusting. The Fourth National Development Plans which aims was to promote self-sufficiency in food for the growing population and raw materials for industries, and improvement of the socio-economic welfare of rural people engaged in agriculture, diversification of the

sources of foreign exchange earnings through increased agricultural exports was consequently abandoned and policy changed to rolling plan within a perspective plan.

Over the years, there has been a growing recognition that macroeconomic policy is a key element of agricultural development. In the Nigerian economy, as indeed in most other economies, the agricultural sector is an integral part of the domestic economy, which is itself an integral part of the global economy (Kwanashie, et al, 1997). These interdependencies generate two trade-offs that are significant to the response of the Agricultural sector to macroeconomic shocks-Fiscal, Monetary, Exchange Rate and Price. How does this affect production, export and absorption level of agricultural commodities? How does the government expenditure affect agricultural productivity, Does Gross Domestic Product increase as a result of investment in agriculture? The inflationary rate and exchange rate of the naira, how do they affect agriculture and income level of the individual?

The specific objectives of the study are to:

- Analyse the production, export and absorption trend of palm kernel between 1986-2010
- Analysethe effect of macroeconomics policy variables on production, export, and absorption of palm kernel.

METHODOLOGY

Nigeria is the study area, with palm kernel as the focus of this study. Palm Kernel is produced predominantly in the southern part of the country. The study period covers from 1986 to 2010.

Sampling Techniques and Data Collection

The data used in this study is secondary data. Secondary data were obtained from the Central Bank of Nigeria. These include:

- CBN Statistical Bulletin (various editions)
- Annual Report and Statement of Accounts
- Economic and Financial Review
- Federal office of statistics (FOS) publication
- World Bank Publications
- Food and Agricultural Organization (FAO)

Data Requirement

The data collected are:

- The estimated output (production level), in tones of palm kernel,
- The absorption level, in tones of palm kernel.
- The export level of palm kernel
- Macroeconomic variables such as producers price of commodities, average rain fall, recurrent and capital expenditure, inflation rate, exchange rate, and gross domestic product.

Analytical Technique

Annual macroeconomic data series on relevant macro-economic variables were used to estimate the model. This study is from 1986 to 2010. The major analytical tool for this study is the ordinary least square multiple regression technique. This was employed in order to be able to quantify the relationship between various independent variables and the dependent variables with the aid of dummy variables to

represent the regimes, based on the assumption that macroeconomic variables measure can be assessed through differential seasonal break (regimes) effect of macroeconomic policy measure in Nigeria.
To distinguish the five regimes, four dummy variable D_2, D_3, D_4 and d_5 were used; where the intercept represent the first regime (D1) in order to avoid the situation called dummy variable trap (Gujarati 2006).
The model consist of a system of stimulus-response functions classified into three blocks:

- Production
- Exports
- Absorption
- (a) To compare the coefficients of the variables for the five regimes.

$Y = a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_5D_5 + Ut.$ (1)

Where

Y = Dependent variables
D_1 = Bench period (1986 – 1990 = 1 , 0 for other)
D_2 = (1991 – 1995 = 1 , 0 for other)
D_3 = (1996 – 2000 = 1 , 0 for other)
D_4 = (2001 – 2005 = 1 , 0 for other)
D_5 = (2006 -2010 = 1 , 0 for other)
$a_1 – a_5$ = coefficients

Ut = stochastic disturbance term

- Effect of each Independent Variable on production, export, absorption.

$Y = a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_5D_5 + a6_V + U_t$ (2)

Where
V = Each selected Independent variables
Others = As defined earlier

- The joint Effect of all Independent Variables on:

(i) **Production**
(d) The production technique is of the form below:

$Q_t == a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_5D_5 + a_6P_t + a_7Q_t + a_8RF_t + a_9REA_t + a_{10}CEA_t + a_{11}FN_t + ut$ (3)

Where
Q_t = the total quantity in tones of the commodity produced at time t.
p_t = Producers price of the commodity in year t. (Naira)
Qt = production level of commodity (tones)
RF_t= Average rainfall at time t
REAt = Recurrent expenditure in Agriculture at time t
CEA_t= Capital expenditure in agric in years t (Naira)
FN_t = Inflation rate
$a_1 – a_{11}$ = Coefficients
Ut = Error term

(ii) Exports

- The export technique will be of the form below:

$Qxt = a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_5D_5 + a_6Px_{t-1} + a_7Px_t + a_8FERN_t + a_9CEA_t + a_{10}REA_t + U_t)$ (4)

Where
Qxt = Export volume in tones at time t.
Px_t= Export price at time t

Px_{t-1} = Export volume at time t lagged one year
$FERN_t$ = Foreign Exchange Rate of the Naira
CEA_t = Capital Expenditure on Agriculture in year t
REA_t = Recurrent Expenditure on Agriculture
a_1-a_{11} Coefficients
Ut = Error term

- **Absorption**

The absorption volume is arrived at
Thus: QDt = Qt – Qxt (5)
Where
QDt = Domestic absorption/consumption
Qt = Production level or output
Qxt = Export level or volume or output

- The technique is of the form below

$$QDt = a_1D_1 + a_2D_2 + a_3D_3 + a_4D_4 + a_4D_5 + a_6GDP_{t-1} + a_7 FERN + a_8 FN + a_9CEA_t + a_{10} REA + a_{11}Pt + Ut \quad (6)$$

Where
GDP_{t-1} = Gross Domestic Product lagged one year
$a_1 – a_{11}$ = Coefficients
Other = As defined earlier
For each of the three stimulus responses model, four functional forms were used. These are linear, exponential, semi-log and double log. The general form of each of the functional form is expressed below:

1. Linear function
   $Yt = ao + a_1 X_1 + a_2 X_2 + …an Xn + Ut$ (7)
2. Exponential function
   $LnYt = ao + a_1 X_1 + a_2 X_2 + … an Xn + Ut$ (8)
3. Semi-log function
   $Yt = ao + a_1 Ln X_1 + a_2 Ln X_2 + …+anLnXn + Ut$ (9)
4. Double log function
   $Lnyt = ao + a_1 LnX_1 + a_2 LnX_2 +…+ anLnXn + Ut$(10)

RESULTS AND DISCUSSION

Trends in Production, Export and Absorption Level of Palm Kernel (1986 – 2010)

The trends in production, exports and absorption of palm kernel, are discussed below.

Palm Kernel production

The output of palm kernel fluctuated throughout the period under review. The average production of palm kernel between 1986-1990 was 698.44 tones. It increased to 814.27 tones between 1991-1995. This however, reduced to 619.94 tones in 1996 – 2000. In 2001 - 2005 palm kernel output increased again to 697.23 tones. It ranked highest between 2006 – 2010 with average production of 6,123.92 tones.

Palm Kernel Export and Absorption

Palm kernel export fluctuated throughout the period of study. It rose to the highest at the last five year of the study. In 1986 – 1990 average palm kernel Export was 23,349.8 tones. This fell to 22,506 tones in 1991 – 1995. Between 1996 -2000 and 2001 – 2005, palm kernel averaged 15,614.4 and 16,687.8 respectively. It rose to the highest peak with an average of 164,081.8 tones in 2006 – 2010. While palm kernel Domestic Absorption was increasing throughout the period of study except in 1996 – 2000 .palm kernel Domestic Absorption averaged 675,092 tones in 1986- 1990. However, in 1991 – 1995 palm kernel Domestic Absorption increased to 791,765.8 tones and fell to 604,333.4 tones in 1996- 2000. This increased to 807,582.8 tones between 2001 – 2005 and between 2006 – 2010, it stood at 8,694,346.6 tones.

Analysis of Regression Results

The multiple regression analytical technique was employed to be able to estimate the effect of the independent variables on the production, export, and absorption of Palm Kernel.

The lead equation with best fit for the commodity is chosen on the basis of the magnitude of the coefficient of determination (R^2), smallness of standard errors as well as appropriateness of the signs of the coefficient of the parameters.

The coefficient of determination (R^2) is used to explain the extent to which the explanatory variables explained variations in output levels of the commodity. R^2 is used because the sample size is small and any additional observation to the sample would increase the coefficient of determination and also decrease the value of $R^{2.}$Adjusted.

The F-statistics indicators joint significance of the independent variables in determining the dependent variables.

The Durbin-Watson test shows the absence of autocorrelation in the commodity.

Effect of Macroeconomic Variables on Output of Palm Kernel

Out of the four functional forms fitted to the data, the exponential function gave the best fit with the R^2 value of 0.375. Adjusted R^2 value is 0.166. From the result in the above table, the magnitude of the coefficient of multiple determination (R^2 = 0.375) indicated that the independent variable explained over 37 percent of the variation in the magnitude of palm-kernel production. The unexplained variation may partly be due to other relevant variables not included in the model.

The significance of the model as judged by the F – Value also indicates that the whole regression equation is significant at 10 percent.

One important consideration in choosing the Exponential functional form for this commodity is the fact that, even though both the linear and semi-log functional forms have high R^2 with their significant, the values of their standard Errors (S.E) were too high.

Effect of Macroeconomic Variables on Export of Palm Kernel

The lead equation for palm-kernel export is linear functional form. The R^2 value is 0.318 while the adjusted R^2 value is 0.91.

The result indicates that 31percent of the variations in the independent variables accounted for the variations in palm- kernel export. Unexplained variations could be the export tariff, demand for substitutes and previous stocks .The F-Value of 1.399 is not significant.

Effect of Macroeconomic Variables on Absorption of Palm Kernel

The functional form chosen is linear. The R^2 value is 0.589 and the adjusted R^2 Value of 0.419.

This indicates over 58 percent of the variation in the independent variables accounted for the variations in the dependent variable.

The F-Value of 3.47 indicates a goodness of fit of the whole regression equation.

For all the coefficient of parameters tested for significance using t-test, price was significant at the 10 percent level while REA was significant at the 5 percent level.

CONCLUSION AND RECOMMENDATION

The study analyzed the production, export and absorption trend of Palm Kernel and the effect of macroeconomic policy variables on production, export and absorption of Palm Kernel in Nigeria. Palm-kernel production did not have a consistent pattern as it fluctuated throughout the period.For Palm-kernel production, the exponential functional form was the lead equation chosen. The significant of the model as judged by the F- value also indicates that the whole regression equation is significant at 10 percent level.

For Palm-kernel export, the linear functional form is the lead equation. The R^2 value of 0.318 and adjusted R^2 value of 0.91. The F- value of 1.399 is not significant.

For Palm-kernel Domestic Absorption, between 2006-2010 also gave the highest consumption rate of 8,694,346.6 tones. From the result of the regression analysis, the lead equation chosen was the linear functional form. However, the result of the t-test, price was significant at the 10 percent level while REA was significant at the 5 percent level.

Based on the research findings, the following recommendations are made:

- There should be a favorable price policy on export commodities to avoid balance of trade deficit.
- Agricultural exports should undergo a measure of processing before export to enhance their earning power.
- Government percentage share of expenditure on agriculture should be increase and sector-specific to justify the huge investment in capital project and for ease of evaluation for possible intervention.
- The authorities should put in place policy thrust that will help reduce the rate of inflation and enhancing favorable exchange rate policy, balance of trade policy and interest rate policy etc.
- There should be government incentive gear towards encouraging increased participation of the organized private sector in commercial basis with guarantees continual flow of investment resources, technologies and entrepreneurial skills in agriculture.
- Government should facilitate credit flow into the agricultural sector and the formulation of policy and effective implementation that will attract the youths into agriculture with the view of empowering them and equipping them to replace the aging farmers.

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Table 1: Output of palm kernel and percentage Growth

Year	Palm kernel output(000tonnes)	Percentage
1986	838,470	-61.06
1987	326,472	18.41
1988	927,708	2.78
1989	953,568	-53.22
1990	445,999	95.59
1991	872,370	-40.57
1992	518,369	53.14
1993	793,867	42.90
1994	1,134,475	-33.68
1995	752,278	15.11
1996	865,972	-26.95
1997	632,528	-26.94
1998	462,074	-3.65
1999	445,168	55.89
2000	693,997	198.32
2001	2,070,362	-74.67
2002	524,299	-29.55
2003	369,363	91.07
2004	705,777	-36.02
2005	451,552	3.08
2006	14,378,271	-95.09
2007	705,777	-36.02
2008	451,552	3.08
2009	14,378,271	-95.09
2010	705,777	

Legend

Year	**1986 – 1990**	**1991 – 1995**	**1996 - 2000**	**2001 - 2005**	**2006 – 2010**
A.Q	698.44	814.27	619.94	697.23	6,123.92

A.Q :Average output

Source: Based on information from Nigeria, Office of Statistics, Social Statistics in Nigeria 2010, Lagos, 2009, 2010. CBN Annual Reports, 2010.

Table 2: Palm kernel Export and Absorption

Year	Palm kernel output(PKQt)	Palm kernel Export(PKXt)	Palm kernel Domestic Absorption(PKDt) PKQt – PKXt
1986	838,470	34,267	804,203
1987	326,472	8,542	317,930
1988	927,708	36,860	890,840
1989	953,568	28,943	924,625
1990	445,999	8,137	437,862
1991	872,370	24,833	847,537
1992	518,369	11,899	506,470
1993	793,867	27,562	766,305
1994	1,134,475	30,099	1,104,376
1995	752,278	18,137	734,141
1996	865,972	17,944	848,028
1997	632,528	14,944	617,584
1998	462,074	10,034	452,040
1999	445,168	12,856	432,312
2000	693,997	22,294	671,703
2001	2,070,362	32,987	2,037,375
2002	524,299	15,656	508,643
2003	369,363	14,449	354,914
2004	705,777	18,482	687,295
2005	451,552	1,865	449,687
2006	14,378,271	390,790	13,987,481
2007	14,378,271	18,482	14,359,789
2008	451,552	1,865	449,687
2009	14,378,271	390,790	13,987,481
2010	705,777	18,482	687,295

Legend

YEAR	1986 – 1990	1991 – 1995	1996 – 2000	2001 - 2005	2006 – 2010
A.Q(PKXt)	23,349.8	22,506	15,614.4	16,687.8	164,081.8
A,Q(PKDt)	675,092	791,765.8	604,333.4	807,582.8	8,694,346.6

A.Q(PKXt) :Average Palm kernel Export

A.Q(PKDt) :Average Palm kernel Domestic Absorption

Source: Computed Based on information from Nigeria, Office of Statistics, Social Statistics in Nigeria, 2010, Lagos, 2009, 2010. CBN Annual Report, 2010.

Table 3: Multiple Regression Result on Effect of Macroeconomic Variables on Output of Palm kernel

Variable	Linear			Semi-log			Double- log			+Exponential		
	coefficient	Std. error	t-value	coefficient	Std. error	t-value	Coefficient	Std. error	t-value	coefficient	Std. error	t-value
Constant Term	-31498.171	5059539.182	-.006	-15637261.714	28398481.306	-.551	3.735	3.025	1.235	5.693	.535	10.631
INF	15190.676	39885.526	.381	1769978.618	2334247.039	.758	.390	.249	.1.569	.005	.004	1.071
EXCH	-9559.264	22756.924	-.420	-4629271.778	3277566.279	-1.412	-.527	.349	-1.510	-.002	.002	-.830
PRICE	-2090.057	2457.614	-.850	-657050.135	1936151.507	-.339	-.098	.206	-.475	.000	.000	-.887
RAF	5347.333	19331.505	.277	4930213.248	11920899.342	.414	.388	1.270	.306	.000	.002	.228
CAP	56.283	77.022	.731	658862.581	3227274.373	.204	.332	.344	.965	1.295E.005	.000	1.589
REA	13.085	9.714	.1.347	2768082.062	1848245.190	1.498	.169	.197	.856	6.491E.007	.000	.631
R^2	.354			.293			.307			.375		
Adjusted R^2	.138			.057			.076			.166		
F	1.642			1.241			1.328			1.799		
D.W	2.838			2.730			2.716			2.839		

Source: Author Computed Result, 2014

+ = Selected equation (functional form)

* = Value significant at 10 percent

Table 4: Multiple Regression Result on Effect of Macroeconomic Variables on Export of Palm kernel.

Variable	+linear			Semi-log			Double- log			Exponential		
	coefficient	Std. error	t-value	coefficient	Std. error	t-value	Coefficient	Std. error	t-value	coefficient	Std. error	t-value
Constant Term	-7644.084	144023.229	-.053	-345470.462	777708.973	-.444	2.093	4.109	.509	3.984	.784	5.082
INF	413.635	1116.732	.370	36703.181	64137.717	.572	.408	.339	1.203	.006	.006	.995
EXCH	-41.976	629.731	-.067	-117873.253	88023.606	-1.339	-.476	.465	-1.024	-.001	.003	-.426
PRICE	26.747	70.862	.377	20380.715	52265.429	.390	.163	.276	.591	8.549E-005	.000	.222
RAF	8.990	531.961	.017	89519.966	322679.031	.277	.348	1.705	.204	.000	.003	.074
CAP	.326	2.161	.151	-9456.607	88882.185	-.106	.131	.470	.279	6.848E-006	.000	.582
REA	.434	.279	1.555	84820.855	51324.047	1.653	.195	.271	.720	8.375E-007	.000	.551
R^2	.318			.281			.174			.168		
Adjusted R^2	.091			.042			-.102			-.110		
F	1.399			1.174			.630			.605		
D.W	2.755			2.619			2.839			2.962		

Source: Author Computed Result, 2014

+ = Selected equation (functional form)

** = Value significant at 5 percent

Table 5: Multiple Regression Result on Effect of Macroeconomic Variables on Absorption of Palm kernel.

Variable	+linear			Semi-log			Double- log			Exponential		
	coefficient	Std. error	t-value	Coefficient	Std. error	t-value	coefficient	Std. error	t-value	coefficient	Std. error	t-value
Constant Term	1837008.323	4911059.007	.374	-22763571.795	29821914.182	-.763	3.100	3.329	.931	5.863	.543	10.789
GDP	.133	.138	.964	1527318.682	1299171.713	1.176	.121	.145	.836	1.382E.008	.000	.905
INF	20355.784	39500.999	.515	1807859.802	2395705.841	.755	.399	.267	1.490	.005	.004	1.166
EXCH	-155179.830	22016.553	-.689	-8509703.175**	3676941.561	-2.314	-.886**	.411	-2.158	-.003	.002	-1.066
PRICE	-4513.615*	2405.631	-1.876	-965621.995	1997783.890	-.483	-.136	.223	-.611	.000	.000	-1.785
RAF	709.658	19061.454	.037	5439983.611	12239673	.444	.452	1.366	.331	2.064E.005	.002	.010
CAP	62.166	74.391	.836	-434725.874	3385178.021	-.128	.245	.378	.647	1.373E.005	.000	1.667
REA	23.274**	9.496	2.451	4995592.841	1969808.070	2.536	.380	.220	1.729	1.676E.006	.000	1.595
R^2	.589			.490			.445			.560		
Adjusted R^2	.419			.280			.216			.379		
F	3.474			2.333			1.944			3.089		
D.W	2.893			2.304			2.435			2.874		

Source: Author Computed Result, 2014

+ = Selected equation (functional form)

** = Value significant at 5 percent

* = Value significant at 10 percent