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MONEY MARKET INSTRUMENTS AND ECONOMIC DEVELOPMENT: EVIDENCE FROM NIGERIA

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ABSTRACT

It is generally believed that money markets play significant role in the process of economic development. However, in Nigeria, there is no general consensus with regard to empirical evidence on the money market-economic development nexus. This study therefore provides empirical evidence on the impact of money market instruments on economic development in Nigeria. Specifically, the study investigated the impact of treasury bills, treasury certificates, development stocks, certificates of deposit, commercial papers and bankers' acceptance on economic development in Nigeria. Economic development is proxied by per capita income. The analytical techniques used for the study include Phillips-Perron unit root test the autoregressive distributed lag (ARDL) bounds test approach to cointegration, and error correction model (ECM). Annual time-series data for the period 1981 to 2021 were used for the study. The findings from the study indicated that treasury bills and commercial papers have significant negative impact on economic development while treasury certificates, development stocks, certificates of deposit, and bankers' acceptance make significant positive contribution to the development of the Nigerian economy. It is recommended, among other things, that there is the need for appropriate regulatory framework and policy measures that will further deepen the money market for improved performance on the economy.

Keywords: Money Market, Instruments, Development, Evidences.

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INTRODUCTION

Every economy consists of financial institutions and markets that regulate the flow of financial resources through the macroeconomy. The function of the financial system of the economy is to co-ordinate the activities of the various units of the economy. This function is referred to as financial intermediation. It is the process through which the financial system mobilizes the savings of the surplus-spending units and channel them as credit to the deficit-spending units of the economy (Shittu, 2012).

The financial market is made up of two components. These are the capital and money markets. The capital market provides long-term funds with maturity periods of over one year through bonds and equities. It therefore provides the avenue through which medium to long-term investments could be financed. The money market on the other hand, is a market for short-term financial instruments. It is mainly for the purpose of providing for the liquidity need of businesses (Kolapo & Adaramola, 2012).

Money market operations play a crucial role in the growth and development of any economy. It facilitates trading in short-term debt instruments to meet short-term financial needs of large funds users such as companies, governments, banks and similar institutions. The money market also plays a key role in the management of banks liquidity and monetary policy transmission (Juttner, 1988).

It is often argued that the growth and development of a country cannot be divorced from the development of its financial sector. The argument is that, the financial sector, through the process of financial intermediation, helps to bridge the gap in the availability of capital needed for productive enterprises. This in turn, enhances the performance of the economy (Kolapo & Adaramola, 2012). The Nigerian money market, which is an integral component of the country's financial system, is therefore expected to impact positively on the growth and development of the country's economy.

From the foregoing, it can be generally asserted that the level of development of a country's money market is to a large extent, related to the level of its economic development. Hence, a well-developed money market efficiently contributes to the growth and development of the country. This explains why it is generally believed that money markets play only limited roles in less developed countries (Balaban & Kunter, 1970). The argument is that, in many developing countries, the money markets are narrow and poorly integrated with a limited array of financial instruments (Nwosu & Hamman, 2008).

The banking system is an important participant in the Nigerian money market. Therefore, any effort at improving the performance of the money market must necessarily start with the development of the banking sector. This explains why the Nigerian government has undertaken several reforms in the country's banking sector. Such reforms include the liberalization of interest rate and removal of ceilings and other controls on domestic credit allocation, the banking sector consolidation and recapitalization reforms, etc. These reforms were meant to reposition the money market to efficiently contribute to the growth and development of the economy (Akpansung & Gidigbi, 2014). However, in spite of these reforms, it appears no significant improvement has been achieved in the performance of the country's money market. Particularly, there is no significant increase in the ratio of banking sector credit to Gross Domestic Product (GDP). This may be attributed to inadequate bank credit (in terms of volume, cost and availability) which has made it difficult for businesses to invest in modern facilities that has the

capacity to enhance economic growth (Gidigbi, 2017). This study therefore examined the impact of money market instruments on the development of the Nigerian economy.

LITERATURE REVIEW AND CONCEPTUAL CLARIFICATIONS

Money Market Instruments

The money market refers to a section of the financial market where financial instruments with high liquidity and short-term maturities are traded. It is a component of the financial market for buying and selling of securities of short-term maturities, of one or less than one year.

Money market instruments are securities that provide the government, banks and businesses with large amounts of low-cost capital on short-term basis. Many instruments have been traded in the Nigerian money market. They include treasury bills, treasury certificates, commercial papers, certificates of deposit, stabilization securities, banker's acceptances, banker's unit funds, eligible development funds, etc. For the purpose of this study, the Nigerian money market instrument include the following:

Treasury Bills

These are government short-term debt instruments issued by the Central Bank of Nigeria on behalf of the Federal Government of Nigeria. Treasury bills are sold at a discount with a maturity period ranging from 91 to 364 days. The Central Bank of Nigeria uses the Treasury bill to conduct open market operation which is an instrument of monetary policy.

Treasury Certificates

Treasury certificates are similar to treasury bills. It however has a longer maturity than Treasury bill.

Development Stocks

Development stocks are fixed-interest bearing debt instruments. They are issued by the CBN on behalf of the Federal Government of Nigeria. Only developments stocks with maturity period of less than 2 years are traded in the Nigerian money market while those with maturity above 2 years are traded in the capital market.

Certificates of Deposit

These are interbank debt instruments with which commercial banks send excess funds to merchant banks. When the issuing bank fails to redeem certificates of deposit at maturity, the CBN rediscounts them. They have maturity period of between three to thirty-six months.

Commercial Papers

These are unsecured short-term promissory notes with maturity period ranging from 2 days to 270 days. Commercial papers are mostly issued by large firms with high credit ratings to obtain funds from members of the public on short-term basis.

Banker's Acceptance

Banker's acceptance is a short-term debt instrument issued by a firm but guaranteed by a bank. The maturity period usually lies between one month and six months.

Economic Development

Economic development is defined as a process of improvements in the various aspects of the economy and the society it supports (Akpakpan, 1999). Todaro and Smith (2011) see economic development as “a process involving major changes in the social structures, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty”. For the purpose of this study, economic development is proxied by per capital income which is measured in terms real gross domestic product per capita.

The Finance-Growth Nexus Theories

The finance-growth nexus theories are theories that explain the role of finance in the economic growth process. The theoretical reasoning on the role of finance in the process of economic growth can be traced back to the work of Bagehot (1873). Bagehot demonstrated how the financial market in Britain affected capital spill-over in the search for profitable ways of application (Stolbov, 2012). According to Bagehot (1873:12), “capital will run as surely and instantly where it is wanted, and where there is most to be made of it, as water runs to find its level”. The Bagehot's thesis therefore emphasized the role of the financial system in pooling together resources and allocate them to most profitable ventures (Hilferding, 1981; Stolbov, 2012).

Bagehot's thesis triggered off many other theoretical propositions on the finance-led growth hypothesis. For instance, Schumpeter (1911) in his theory of economic development, argued that, for economic development to be attained, entrepreneurs' innovations (new combinations) are financed by bank credit (Marwa & Zhanje, 2015). Gurley & Shaw (1955, 1960) also contributed to the finance-growth nexus theories. The Gurley-Shaw thesis argued that the financial system is important for economic growth and development. They see financial deepening as a strategy that can accelerate the pace of economic growth and development (Marty, 1961; Tahir et al., 2015).

Another contributor to the finance-led growth theories is Gerschenkron (1962) who stressed that the financial sector facilitates the process of economic advancement. The work of Gerschenkron (1962) was reinforced by the works of Patrick (1966) and Goldsmith (1969). They equally emphasized the propulsive role of the financial system in engendering economic development (Eschenbach, 2004).

In the early 1970s, Ronald Mckinnon and Edward Shaw attacked the prevailing theoretical schools of financial repression advocates thereby, contradicting Keynes and Tobin. Mckinnon (1973) and Shaw (1973) considered financial liberalization as the corner stone of

economic reforms in less developed countries. They argued that liberalization will result in higher rates of interest which will lead to a more efficient resource allocation, high rates of investment and consequently, faster economic growth (Balassa, 1989; Eschenbach, 2004; Sulaiman et al, 2012).

EMPIRICAL LITERATURE REVIEW

Ebi and Ihejirika (2022) examined the impact of money market operations on economic growth in Nigeria for the period 1985 to 2020. The findings showed that treasury bills and certificates of deposit have significant negative impact on GDP; commercial papers have insignificant positive impact on GDP while banker's acceptance has significant positive impact on GDP. Ighoreje and Eloho (2022) analysed the impact of both capital and money market operations on economic growth in Nigeria using data for the period 2008 to 2020. The result showed that market capitalization and treasury bills have significant positive on real GDP while turnover ratio and commercial papers have insignificant positive impact on real GDP. On the other hand, all share index has significant negative impact on real GDP while banker's acceptance has insignificant negative effect on real GDP.

Using annual data for the period 1981 to 2016, Ebi and Omoijahe (2021) established that Treasury bill has significant positive effect on GDP while commercial paper has insignificant positive impact on GDP in Nigeria. Aladelusi (2021) studied the impact of financial market instruments on economic growth in Nigeria using data for the period 1999 to 2019. The outcome of the study showed that Treasury bill and market capitalization have strong positive impact on GDP; government bonds has weak positive impact on GDP while interest has weak negative impact on GDP. Ogbuji (2021) examined the impact of money market instruments on economic growth in Nigeria for the period 1981 to 2016, and found that treasury bill and federal government bonds have strong direct impact on GDP; commercial papers have weak positive impact on GDP while banker's acceptance has weak negative effect on GDP. Using data for the period 1981 to 2018, Dameji et al. (2021) established that commercial papers has strong negative effect on GDP while certificates of deposit has weak positive impact on GDP. Obi (2021) established that treasury bills, certificates of deposit, and banker's acceptance have strong direct impact on real GDP while commercial papers have weak direct impact on real GDP.

Akpotor (2021) studied the impact of money market instruments on economic growth in Nigeria. Utilizing annual data for the period 1986 to 2019, the study established that treasury bills, certificates of deposit and banker's acceptance have weak direct impact on GDP growth rate while credit to private sector and commercial papers have weak negative impact on GDP growth rate. Ishola et al., (2021) founds that treasury bill and development stocks have weak negative impact on GDP; treasury certificates and banker's acceptance have weak direct impact on GDP while certificates of deposit and commercial papers have strong direct impact on GDP in Nigeria for the period 1990 to 2020. Godfrey and Agwu (2019) found that treasury bill, commercial papers and banker's acceptance have weak positive effect on GDP in Nigeria for the period 1981 to 2017. Uruakpa (2019) studied the nexus between money market instruments and economic growth in Nigeria for the period 1990 to 2017 and established that treasury bills have weak negative impact on GDP.

Evaluation of the Empirical Literature Reviewed

The empirical literature reviewed showed that there is no consensus in the results from previous studies on the impact of money market instruments in Nigeria. For instance, Godfrey and Agwu (2019), Obi (2021), Aladelusi (2021), Ebi and Omoijahe (2021), and Ighoroje and Eloho (2022) found positive relationship between treasury bills and economic growth. On the other hand, Uruakpa (2019), Ishola et al. (2021) and Ebi and Ihejiraka (2022) found negative nexus between treasury bills and economic growth. Similarly, Dameji et al. (2021), Ogbuji (2021), and Ighorege and Eloho (2022) established that commercial papers have positive impact on economic growth while Akpotor (2021) and Ebi and Ihejirika (2022) observed negative impact of commercial papers on economic growth. Similar inconsistencies were observed on the impact on other money market instruments on economic growth in Nigeria. It is also observed from the empirical literature on the topic in Nigeria that previous studies laid emphasis on the impact of money market instruments on economic growth measured in terms of either gross domestic product or real gross domestic product. In other words, none of the studies on the topic in Nigeria investigated the impact of money market instruments on economic development measured in terms of per capita income.

To fill the gaps identified above, this study examined the impact of money market instruments on economic development in Nigeria. Economic develop is proxied by per capita income which is in turn, measured in terms of per capita real gross domestic product.

METHOD OF STUDY

Description of the Variables of the Study

Dependent Variable

The dependent variable for this study is economic development proxied by per capita income. Per capita income is in turn measured in terms of per capita real gross domestic product which is defined as the inflation-adjusted money value of the final output of goods and services produced within the geographical confines of Nigeria divided by the total population. It is measured in millions of naira.

Explanatory Variables

- **Treasury Bills:** These are federal government short-term debt instruments with maturity periods of 91 to 364 days.
- **Treasury Certificates:** These are similar in all respects to treasury bills except that they have longer maturity periods.
- **Development Stocks:** Development stocks traded in the Nigerian money market are federal government debt instruments with fixed interest rates and maturity period of not more than 2 years. Development stocks with maturity period of more than 2 years are traded in the capital market (Central Bank of Nigeria, 2021).
- **Certificates of Deposit:** These are interbank debt instruments that allow commercial banks to send excess funds to merchant banks. They have maturity phase of between 3 to 36 months.

- **Commercial Papers:** Commercial papers are unsecured short-term promissory notes with maturity periods ranging from 2 days to 270 days.
- **Bankers Acceptances:** These are short-term debt instruments issued by a firm but guaranteed by bank. They are mostly used in international trade. They have maturity periods between one month and six months.

All the money market instruments used are explanatory variables for this study are measured in their values outstanding in billions of naira.

Model Specification

The model used for study is formulated based on finance-growth nexus theories and the analytical model developed by Ishola et al (2021) which is expressed as follows:

$$GDP = f(TBS, TCS, CDS, BANKAC, DSTOCK, COMPA) \dots\dots\dots 3.1$$

where GDP = Gross Domestic Product (a proxy for economic growth),.

TBS = Treasury Bills;

TCS = Treasury Certificates;

CDS = Certificates of Deposits;

BANKAC = Bankers Acceptances;

DSTOCK = Development Stocks;

COMPA = Commercial Papers; and

f = Functionality Notation.

After adjusting the adopted model by Ishola et al. (2021) to allow for the inclusion of the variables of this study, the mathematical form of our model is specified as shown below:

$$PCI = f(TB, TC, DS, CD, CP, BA) \dots\dots\dots 3.2$$

where PCI = Per Capital Income (it is used to proxy economic development);

TB = Treasury Bills;

TC = Treasury Certificates;

DS = Development Stocks;

CD = Certificates of Deposit;

CP = Commercial Papers;

BA = Bankers Acceptances; and

f = Functionality Notation.

Per capita income is the dependent variable while

TB, TC, DS, CD, CP, and BA are the explanatory variables.

The econometric form of the mathematical model above is expressed as follows:

$$PCI = \beta_0 + \beta_1 TB + \beta_2 TC + \beta_3 DS + \beta_4 CD + \beta_5 CP + \beta_6 BA + U \dots\dots\dots 3.3$$

where β_0 is the regression constant, $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5,$ and β_6 are the coefficients of the explanatory variables while U is the error disturbance term. Every other variables are as earlier defined.

A logarithmic transformation of equation 3.3 above can be expressed as follows:

$$PCI = \beta_0 + \beta_1 LTB + \beta_2 LTC + \beta_3 LDS + \beta_4 LCD + \beta_5 LCP + \beta_6 LBA + U \dots\dots\dots 3.4$$

where L is the natural logarithm of the variables where applicable. All other variables are as earlier defined.

Apriori Theoretical Expectations

Based on apriori theoretical reasoning, we expect the following signs of the coefficients of the explanatory variables.

$$PCI = \beta_0 + \beta_1 LTB + \beta_2 LTC + \beta_3 LDS + \beta_4 LCD + \beta_5 LCP + \beta_6 LBA + U$$

$$\beta_1 > 0, \beta_2 > 0, \beta_4 > 0, \beta_5 > 0, \beta_6 > 0$$

The implication of the above signs of the parameter estimates is that we expect positive (greater than zero) relationship between each of the explanatory variables and the dependent variable.

Nature and Sources of Data

This study made use of annual time-series data for the period 1981 to 2021. The data were obtained from secondary sources such as the CBN annual statistical bulletin for 2021 and the CBN annual reports and statements of account for various years.

Techniques of Data Estimation

The classical least squares technique is based on the assumption that the time-series data are stationary. In practice, many macroeconomic time-series are however non-stationary. The analytical procedure was therefore started with stationarity test which was conducted using the Phillips-Perron unit root test. Based on the result of the unit root test, the Autoregressive Distributed lag (ARDL) approach to cointegration and the error correction model (ECM) were used in estimating the data. Following the ARDL formulation, equation 3.4 can be respecified as follows:

$$\Delta PCI_t = a_0 + \sum_{i=1}^p a_{1i} \Delta PCI_{t-1} + \sum_{i=1}^p a_{2i} \Delta LTB_{t-1} + \sum_{i=0}^p a_{3i} \Delta TC_{t-1} + \sum_{i=0}^p a_{4i} \Delta DS_{t-1} + \sum_{i=0}^p a_{5i} \Delta CD_{t-1} + \sum_{i=0}^p a_{6i} \Delta LCP_{t-1} + \sum_{i=0}^p a_{7i} \Delta LBA_{t-1} + y_1 PCI_{t-1} + y_2 LTB_{t-1} + y_3 TC_{t-1} + y_4 DS_{t-1} + y_5 CD_{t-1} + y_6 LCP_{t-1} + y_7 LBA_{t-1} + \varepsilon_t$$

where Δ = first difference operator, a_0 = the drift parameter, the terms with the summation (Σ) sign (ie., $a_{1i} = a_{7i}$) = the short-run (ECM) dynamics, p = the ECM lag length.

The y 's (i.e., $y_1 - y_7$) = the long-run coefficients.

ε_t = white noise error term. All other variables are as earlier defined.

The ARDL bounds test approach to cointegration uses the Wald-test (F-statistics). It is conducted using the following hypotheses:

$$H_0: y_1 = y_2 = y_3 = y_4 = y_5 = y_6 = y_7 = 0$$

(i.e. there is no long-run relationship)

$$H_1: y_1 \neq y_2 \neq y_3 \neq y_4 \neq y_5 \neq y_6 = y_7 = 0$$

(i.e. there exist long-run relationship)

PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

Presentation of Results

Descriptive Statistics

Table 1: The descriptive statistics results

	PCI	BA	CD	CP	DS	TB	TC
Mean	1802.561	20.43415	14.12366	69.68488	2.038780	987.7463	6.098293
Median	1607.000	11.97000	0.260000	8.020000	1.830000	471.9300	0.000000
Maximum	2564.000	81.83000	82.46000	822.7000	4.910000	3786.140	37.34000
Minimum	1324.000	0.010000	0.000000	0.070000	0.000000	5.780000	0.000000
Std. Dev.	452.4802	23.62472	26.07146	160.8726	1.783379	1187.949	11.88030
Skewness	0.452545	0.269167	0.531242	0.264458	0.173299	0.045365	1.921799
Kurtosis	1.550233	3.668881	3.688127	3.070441	1.479815	2.616845	2.038045
Jarque-Bera	4.990064	6.771340	16.83106	2.821850	4.153117	7.718175	32.33341
Probability	0.082494	0.552779	0.000221	0.896589	0.125361	0.221087	0.478568
Sum	73905.00	837.8000	579.0700	2857.080	83.59000	40497.60	250.0300
Sum Sq. Dev	8189532	22325.10	27188.84	1035200	127.2176	5644894	5645.660
Observations	41	41	41	41	41	41	41

Source: computed from E-view

The result of the descriptive statistic in table 1 show that the mean values of the variables are 1802.561, 20.43415, 14.12366, 69.68488, 2.038780, 987.7463, and 6.098293 for PC1, BA, CD, CP, DS, TB, and TC respectively. The standard deviation shows that TB (1187.949) is the most fluctuating variable while DS (1.783379) is the least fluctuating variable. The Skewness statistic shows that all the variables are positively skewed. The kurtosis statistic indicates that PCI, DS, TB, and TC are platykurtic (i.e., their values are less than 3). This suggests that they have thinner tails relative to normal distribution. On the other hand, BA, CD, and CP are leptokurtic (ie. their

values are greater than 3). This means that they have wider or flatter tails relative to normal distribution.

Unit Root Test Result

The result of the Philips-Perron unit root test is presented in table 2

Table 2: Philips Perron Unit Root Test Result

Variable	Phillips-Perron Test Statistic (At levels)	Critical values		Phillips-Perron Test statistic (At 1 st Diff)	Critical value		Order of integration
		1%	5%		1%	5%	
PCI	-0.110679	-3.605593	-2.936942	-4.068875*	-3.610453	-2.938987	I(1)
LTB	-2.373198	-3.605593	-2.936942	-5.212114*	-3.610453	-2.938987	I(1)
TC	-1.897448	-3.605593	-2.936942	-4.888114*	-3.610453	-2.938987	I(1)
DS	-0.280377	-3.605593	-2.936942	-3.921148*	-3.610453	-2.938987	I(1)
CD	-2.97433**	-3.605593	-2.936942				I(0)
LCP	-2.389367	-3.605593	-2.936942	-5.739444*	-3.610453	-2.938987	I(1)
LBP	-1.985222	-3.605593	-2.936942	-7.355061*	-3.610453	-2.938987	I(1)

Source: Computed from E-view

Note: *and ** denote rejection of the null hypothesis of unit root at the 1% sand 5% significance levels respectively.

The Phillips-Perron unit root test result in table 2 shows that certificate of deposit (CD) is stationary at levels (i.e., I(0)) at the 5% level of significance. On the other hand, per capita income (PCI), Treasury Bills (TB), Treasury Certificates (TC), Development Stocks (DS), Commercial Papers (CP), and Bankers Acceptance (BA) are stationary at first difference (i.e., I(1)) at the 1% level of significance.

ARDL Bounds Test Result

The result of the ARDL bounds test approach to cointegration is presented in table 3

Table 3: ARDL Bounds Test Result

Bounds Test	Null Hypothesis: No Long-run Relationships Exist			
	Value	Significance	I(0)	I(10)
F-Statistic	27.75566	10%	2.12	3.23
K	6	5%	2.45	3.61
		2.5%	2.75	3.99
		1%	3.15	4.43

Source: Computed from E-view

Decision Rule

To accept the null hypothesis in ARDL bounds test result, the computed F-statistic must be lower than the lower bound (i.e., $I(0)$) critical value at the chosen level of significance. On the other hand, to reject the null hypothesis, the computed F-statistic must be greater than the upper bound (i.e., $I(1)$) critical value at the chosen level of significance. If, however, the computed F-statistic lies between the lower and upper bounds, the test is declared inconclusive.

From the ARDL bounds test result in table 3, the computed F-statistic is 27.75566. This is greater than the upper bound critical value of 3.61 at the 5% level of significance. Hence, the null hypothesis that no long-run relationships exist is rejected. It is therefore concluded that long-run (equilibrium) relationships exist between money market instruments and economic development in Nigeria.

VAR Lag Order Selection Criteria

Table 4 presents the vector autoregressive (VAR) optimal lag length of the ARDL model. The optimal lag length is the one that minimizes the Akaike Information Criterion (AIC), Schwarz Criterion (SC) and Hannan-Quinn (HQ) criterion, and at which the model does not have autocorrelation.

Table 4: VAR Lag Order Selection Criteria

Endogenous Variables: PCI LTB TC DS CD LCP LBA
Exogenous Variables: C
Date: 02/20/23 Time: 16:47
Sample: 1981 2021
Included Observations : 38

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-1036.938	NA	1.72e+15	54.94409	55.24575	55.05142
1	-814.7377	350.8422	1.97e+11	45.82830	48.24158*	46.68693*
2	-771.4488	52.40232	3.50e+11	46.12888	50.65379	47.73881
8	-689.2395	69.22890*	1.40e+11*	44.38103*	5101756	46.74225

***indicates lag order selected by the criterion**
LR: sequential modified LR test statistic (each test at 5% level)
FPE: Final prediction error
AIC: Akaike information criterion
SC: Schwarz information criterion

Source: Computed from E-view

From table 4, the optimal lag length for the ARDL model is lag 3 based on the Akaike Information Criterion (AIC).

Estimated Regression Results

The ARDL estimated short-run (ECM) and long-run regression results are presented in table 5.

Table 5: ARDL Estimated Regression Results

Dependent Variable : PCI				
Selected Model : ARDL (3, 4, 4, 4, 4, 4)				
Date: 02/20/23 Time: 16:58				
Sample: 1981 2021				
Included Observations: 37				
Cointegrating Form				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(PCI(-1))	-0.202573	0.110635	-1.831000	0.1645
D(PCI(-2))	-1.489127	0.279632	-5.325318	0.0129
DLog(TB)	-124.4958	36.90857	-3373086	0.0433
DLog(TB(-1))	200.8231	36.66006	5.477979	0.0120
DLog(TB(-2))	-14.99923	35.65159	-0.420717	0.7023
DLog(TB(-3))	-23.38836	31.09079	-0.752260	0.5065
D(TC)	6.578280	1.688928	3.894944	0.0300
D(TC(-1))	-8.302127	1.374397	-6.040558	0.0091
D(TC(-2))	5.937700	1.621167	3.662608	0.0352
D(TC(-3))	-5.857933	1.065117	-5.499803	0.0118
D(DS)	-284.0093	121.9899	-2.328137	0.0503
D(DS(-1))	204.9829	74.03267	2.768817	0.0501
D(DS(-2))	105.1351	75.62215	1.390269	0.2586
D(DS(-3))	-220.3833	63.19222	-3.487506	0.0398
D(CD)	-6.520046	1.242204	-5.248771	0.0135
D(CD(-1))	-9.287425	0.959086	-9.683625	0.0023
D(CD(-2))	-9.421689	0.945138	-9.968588	0.0021
D(CD(-3))	0.636653	0.698760	0.911118	0.4294
DLog(CP)	-0.486806	0.098959	-4.919262	0.0161
DLog(CP(-1))	1.784638	0.228714	7.802915	0.0044
DLog(CP(-2))	1.762769	0.200421	8.795330	0.0031
DLog(CP(-3))	0.747822	0.120885	6.186222	0.0085
DLog(BA)	5.318935	1.152841	4.613764	0.0192
DLog(BA(-1))	-13.75239	1.639039	-8.390489	0.0036
DLog(BA(-2))	-8.696894	1.242527	-6.999362	0.0060
DLog(BA(-3))	-19.019050	2.005147	-9.485116	0.0025
CointEq(-1)	-0.256340	0.057751	-4.438728	0.0213
Cointeq = PCI(-737.2833*Log(TB) + 29.5172*TC + 782.6110*DS + 77.3235*CD - 17.9830*Log(CP) + 225.6396*Log(B) + 102.7777)				
Log-Run Coefficients				
Variable	Coefficient	Std. Error	t-statistic	Prob.
Log(TB)	-737.2833	311.7859	-2.364710	0.0502
TC	29.51721	6.551726	4.505258	0.0204
DS	782.6110	351.5535	2.226150	0.0505
CD	77.32348	19.36527	3.992896	0.0281
Log(CP)	-17.98302	4.708937	-3.818914	0.0316
Log(BA)	225.6396	56.59014	3.987260	0.0282
C	102.7777	1889.504	0.054394	0.9600

Source: Computed from E-view

In table 5, the short-run (ECM) regression result is presented in the upper panel while the long-run result is presented in the lower panel. From the short-run result, the error correction term (coint Eq(-1)) turned up with the correct negative sign. It is also significant at the 0.05 level of significance. The implication is that economic development (PCI) is adjusted to changes in the explanatory variables and its own lags within a year in the current period. In terms of magnitude,

the coefficient of the error correction term is -0.256340. This means a speed of adjustment of about 25%. It therefore follows that about 25% of any disequilibrium in the short-run is reconciled to long-run equilibrium within a year.

Post Estimation Tests Results

Given that ARDL is a linear regression model, there is the need that the underlying assumptions of the classical linear regression model (CLRM) are satisfied. Hence, some of these assumptions are tested in this section and the results are presented in table 6.

Table 6: Post-Estimation Tests Results

Tests	Value	Prob.	Decision
Linearity (Ramsey-RESET) Test			Accept (model correctly specified)
t-statistic	0.176283	0.8613	
F-statistic	0.031076	0.8613	
Breusch-Godfrey (Serial Correlation) LM Test			Accept (No serial correlation)
F-Statistic	1.797700	0.4558	
Heteroscedasticity (Breusch-Pagan-Godfrey) Test			Accept (Residuals have constant variance)
F-Statistic	1.797700	0.1156	
Normality (Jarque-Bera) Test			Accept (Data normally distributed)
F-Statistic	0.593883	0.743087	

Source: Computed from E-view

Note that for each of the tests in table 6, the null hypothesis will not be rejected (i.e., it will be accepted) if the probability value is greater than 0.05.

DISCUSSION OF FINDINGS

The estimated regression results presented in table 5 are discussed in detail in this section.

Estimated Short-Run Regression Result

The ARDL estimated short-run regression result indicated that economic development lagged by one period (i.e., PCI (-1)) has insignificant negative impact on economic development in the current period. Also, the value of economic development lagged by 2 periods (i.e., PCI (-2)) has significant negative impact on economic development in the current period. The implication of the behaviour of lagged values of per capita income is that the level of economic development in the past negatively affect the current level of economic development in Nigeria.

The current value of Treasury bill has significant negative impact on economic development while its value lagged by one period has significant positive impact on economic development in the current period. However, the lagged values of Treasury bill in periods 2 and 3 have insignificant negative impact on economic development in the current period.

Treasury certificate in the current period and its lagged value in period 2 have significant positive impact on economic development in the current period. On the other hand, lagged values of treasury certificates in periods one and three have significant negative impact on economic development in the current period.

Development stock in the current period and its lagged value in period 3 have significant negative impact on economic development in the current period. On the other hand, development stocks lagged by one period has significant positive impact on economic development while its lagged value in period 2 has insignificant positive impact on economic development.

Certificates of deposit in the current period and its lagged values in periods one and two have significant negative impact on economic development in the current period. However, the lagged value of certificate of deposit in period 3 has insignificant positive impact on economic development in the current period.

Commercial papers in the current period has significant negative impact on economic development in the current period while its lagged values in periods 1, 2 and 3 have significant positive impact on economic development in the current period.

Bankers' acceptance in the current period has significant positive impact on economic development in the current period. However, the lagged values of bankers' acceptance in periods 1, 2, and 3 have significant negative impact on economic development in the current period.

Estimated Long-Run Regression Result

The result of the ARDL estimated long-run model shows that treasury certificate, development stock, certificate of deposit, and bankers' acceptance have significant positive impact on the development of the Nigerian economy. On the other hand, Treasury bill and commercial papers have significant negative impact on economic development in Nigeria.

CONCLUSION

The following conclusions are drawn based on the findings from the study:

- Treasury bills have strong negative impact on economic development in Nigeria
- Treasury certificate makes strong positive contribution to the development of the Nigerian economy.
- Development stocks strongly stimulate economic development in Nigeria.
- Certificates of deposit strongly supports the development of the Nigerian economy.
- Commercial papers strongly reduce the level of economic development in Nigeria.
- Bankers' acceptance makes significant positive contribution to the development of the Nigerian economy.

Recommendations

Based on the conclusions drawn from the findings of the study, the following policy measures are recommended:

- The Central Bank of Nigeria should exercise caution in the use of treasury bills and commercial papers as instruments in the operation of the Nigerian money market. This is as a result of the established evidence of their adverse effects on economic development.
- Operation of money market instruments like treasury certificates, development stocks, certificates of deposit, and bankers' acceptances should be emphasized by the CBN. This

is based on the empirically established evidence that they have strong positive effects on the development of the Nigerian economy.

- Appropriate regulatory framework and policy measures that will further deepen the money market for improved performance on the economy, need to be in place.
- There is the need for increased public awareness on the existence of a variety of money market instruments in Nigeria. This will attract more investors to the money market.

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