

## MONEY MARKET OPERATIONS AND ECONOMIC DEVELOPMENT IN NIGERIA

**Yusuf Olatunji, OYEDEKO**

Department of Banking and Finance, Faculty of Management Sciences,  
Federal University Oye Ekiti, Ekiti State –Nigeria

**Muhammed ZUBAIRU**

Department of Banking and Finance, Faculty of Administration,  
Ahmadu Bello University, Zaria –Nigeria

**Regina SAMSON**

Department of Banking and Finance, Faculty of Management Science,  
University of Abuja, Abuja–Nigeria

**Timothy MORONKEJI**

Department of Banking and Finance, Faculty of Management Science,  
University of Abuja, Abuja–Nigeria

**Abstract:** *The study examines effect of money market operation on economic development of Nigeria. The study adopts Treasury bill, 3months deposit rate, 6 months deposit rate, 12 months deposit rate and over 12 months deposit rate as proxies for money market operations while unemployment rate was used as a measure of economic development. Based on this, the study formulated five hypotheses and these were tested through Vector Error Correction Mechanism. Expos-facto research design is adopted in this study which is characterizes with quantitative or numeric description of historical data. The data for this study were obtained from secondary sources. This includes Central Bank of Nigeria Annual Report and CBN Statistical Bulletin. The data covers the period of thirty-three years from 1985-2017. The study found that Treasury bill has a negative effect on economic development. Also the over 12 months deposit rate has a negative but insignificant effect on economic development in Nigeria. The 12 months deposit rate on has a positive but insignificant on economic development in Nigeria. The result also shows that the deposit rate for 3 month and 6 month have a negative but significant effect on economic development in Nigeria. In line with the findings, the study concluded that money market operation has effect on economic development in Nigeria. Based on this the following recommendation are made. The Central Bank of Nigeria should implement flexible policies on the acquisition of Treasury bill and this will enhance the performance of money market in Nigeria.*

**Keywords:** *Money market operations, Treasury bill, Deposit rates, economic development.*

**JEL Classification:** *C24, G34, G35.*

### 1. Introduction

The financial system of any entity serves as a catalyst through financial intermediation for productive activities to ensure economic growth and development (Olowo, 2008). The sector provides fund for investment and also allocates these funds efficiently as possible to those project that offers best returns to fund owners.

The sector combines banks and non-banks which are institutional arrangement that facilitates the intermediation of funds in an economy. The non-bank institution comprises of insurance companies, money market, capital market, pension fund among others. The market which deals with sort term funds and the capital market that is for long term dealings in loanable funds (Anyanwu, 1996).

The basic of distinction between money market and the capital market lies in the degree of liquidity of instrument bought and sold in each of the market which can be subdivided into the primary and secondary market. The primary market is concerned with raising of new fund while the secondary market exists for the sale and purchasing of existing securities. Afolabi, (1991) is of the opinion that financial market bridges the gap between the savers who purchased securities when they had surplus to recover their money when they are in need of cash. The major concern for the study is the money market and its impact on Nigeria Economic development, the money market is an intermediary for short

term financial asset that are close substitute for money and it was established by the Central Bank of Nigeria primarily for mobilizing domestic savings for productive investments as well as providing government with funds to enable implement programmes (Nibeabuchi, 2004).

The Nigeria money market offers opportunity for trading short term instrument which is very liquid and has negligible risk and the money market also provides the basis for implementation of monetary policy. The types of instrument traded are treasury bill, treasury certificate, commercial paper, bankers acceptance etc. commercial papers are the dominant players in the market while the market provides the basis of operations, manipulation and execution of monetary policy (indirect instrument) with discount houses intermediary between the Central Bank and other banks where the former is playing the role of the lender of last resort to the market. (Jhingan, 2004). Not surprisingly, over the last decade, the financial development and economic growth nexus has drawn immense attention among researchers and policymakers from both the developed and developing countries.

A number of studies have been conducted to investigate different proxy variables of financial development and empirical studies have confirmed the positive association between them (Azam et al. 2016; Bwire and Musiime 2015; Chang and Caudill 2005; Comin and Nanda 2014; De Gregorio and Guidotti 1995; Kassimatis 2000; Kyophilavong et al. 2016; Ram 1999; Hasan and Barua 2015; Saad 2014; Shahbaz et al. 2015).

The contribution of financial development towards economic development comes with either bank-based financial development, market-based financial development, or both. Different countries experience financial development in both or either way. The main objective of this study is to examine the effect of money market operations on economic development in Nigeria. Other specific objectives are as following: To assess effect of Treasury bill on economic development in Nigeria; to assess effect of 3 months deposit rate on economic development in Nigeria; to examine effect of 6 months deposit rate on economic development in Nigeria; to assess effect of 12 months deposit rate on economic development in Nigeria; o examine effect of Over 12 months deposit rate on economic development in Nigeria. In line with these objectives, the following research questions are stated as follow; Does Treasury bill have effect on economic development in Nigeria? What effect does 3 months deposit rate have on economic development in Nigeria? Does 6 months deposit rate have effect on economic development in Nigeria? What effect does 12 months deposit rate have on economic development in Nigeria? What effect does Over 12 months deposit rate have on economic development in Nigeria? In consonance with these research questions, the following research hypotheses are formulated as follow; Treasury bill has no significant effect on economic development in Nigeria; Over 12 months deposit rate has no significant effect on economic development in Nigeria; 12 months deposit rate has no significant effect on economic development in Nigeria; 6 months deposit rate has no significant effect on economic development in Nigeria; 3 months deposit rate has no significant effect on economic development in Nigeria.

In order to answer these questions and test the formulated hypotheses the remaining part of the paper is structured as follow: section two reviewed literature on money market operations and economic development, section three outlines the methodology adopted for the study. Data analysis and discussion were presented in section four while section five concludes the paper and proffer recommendations.

## **2. Literature review**

The money market is a market for short term funds and as the name suggest, it is a market in which money is bought and sold, the market is used by business enterprise to

raise fund for the purchase of inventories, by banks to finance temporary reserve loss, by companies to finance consumer credit and by government to bridge gap between its recipient and expenditure.

Based on its importance, the followings are some of the documented studies; Ajao and Festus (2011) examined the effect of the global financial meltdown on the Nigerian money market in two separate time periods, 2000 – 2005 and 2006 – 2009 using Ordinary Least Square (OLS) techniques. The Study found that during the non-crises era (2000 – 2005) all the explanatory variables met the a-priori expectations; but during the crises era (2006 – 2009) only the coefficient of inflation retains its a-priori expectations or sign. The study avert that economic activities were adversely affected by the global financial meltdown. Based on this, the study recommended that adequate procedures for handling financial sector crisis should be drawn up promptly and that the monetary authorities should identify the vulnerabilities of the money market and safe guide its effectiveness. Also, Okpe (2013) studied the impact of money market on the Nigerian economic development for the period 1987 – 2007 using Ordinary Least Square (OLS) method.

The study found that Nigerian Stock Exchange has contributed to some extent in financing small and medium scale enterprises, and that the market appears to be bright considering the current position of government and players of the industry in the area of formulation and implementation of favourable policies. In the same token, Maduka and Nnwuka (2013) examined both the short-run and long-run relationships between financial structures and economic growth, using secondary time series data. The results indicated that financial market structure has a negative and significant effect on economic growth. According to them, information on the Nigerian financial market suggests a low level of development of the country's financial sector. Thus, the study recommended that there is need to put appropriate financial policies in place that would encourage the growth of per capita GDP in Nigeria.

Ogege and Shiro (2013) studied the role of banks deposit money in the growth of the Nigerian economy, for the period 1974 to 2010, using Co-integration and Error Correction Model (ECM) and structural analysis technique to analyse data. The study found that there exists a long-run relationship between the dependent variable and the explanatory variables; and that the results conform to economic a priori expectations. The study therefore recommended that policies which tend to increase the gross domestic product through financial sector operations such as increase in banks deposit liabilities, low interest rates, and high liquidity ratios be encouraged.

Ehigiamusoe (2013) examined the link between money market and economic growth in Nigeria, using data for the period 1980 – 2013 using Ordinary Least Square (OLS) method, Johansen Co-integration test and Vector Error Correction Model. The found a long-run relationship exists between money market and economic growth, but that the present state of the Nigerian money market is significantly and negatively related to economic growth. The study concluded that government should create the appropriate macroeconomic policies, legal framework and also sustain the present reforms with a view of developing the market so as to promote productive investment activities and ultimately economic growth.

Iwedi and Igbanibo (2015) investigated the nexus of money market operations on economic growth in Nigeria during the period 1980–2013, using Vector Auto Regression (VAR), Johansen Co-integration and Granger causality tests. The study found that there is a positive significant short-run and long-run relationship between money market operations and economic growth in Nigeria. The results of the Causality test confirm that causality flows from economic growth proxy by gross domestic product (GDP) to money market operations but not vice versa. The study concluded that money market operations (as key

components of the financial system) produced short-term growth tendencies and help to ensure long-run impressive and steady economic growth rates in Nigeria. The study recommended that government should both in the short and long run prioritize policies geared towards increasing or developing money market operations in Nigeria in order to make the economy more stable.

In a related study, Ehigiamusoe (2016) examined the challenges of money market development and its impact on economic growth in Nigeria, using Ordinary Least Square (OLS) techniques for data analysis. The results suggest that the Nigerian money market is significant but negatively related to economic growth. The study found that the Nigerian money market is not yet virile enough to produce the needed growth that will propel the economy to meaningful development, and that the link between the money market and real sector of the economy remains very weak.

Agbada and Odejimi (2015) investigated the developments in money market operations and economic development in Nigeria for the period 1981 – 2011, using multiple regression techniques for data analysis. The study found that the variations in the growth trends of GDP and the explanatory variables in the graphical representation appears to cast doubt on whether money market operations made significant contribution to GDP growth for the period under review. The study found that the Pearson correlation coefficient matrix substantially attested to strong linear relationship between the explained and explanatory variables. The study therefore recommended among others that monetary authorities should initiate policies to boost money market operations and also be proactive in their surveillance role in order to check practices that are capable of sabotaging market soundness.

Pavtar (2016) investigated the link between money market and economic growth in Nigeria using time series data for the period 1985-2014. The study adopted an ex-post-facto research design, and employed descriptive statistics, OLS multiple regression techniques for data analysis. The findings revealed that TBs, TCs and CPs had no effect on GDP, but CDs had significant impact on GDP. The study recommended among others the creation of appropriate macroeconomic policies by government to promote economic growth in Nigeria.

It is very explicit that none of the empirical studies reviewed showed emphasis on deposit rates offered in the money market which ranges from 3 month, 6 month, 9 months, 12 months and over 12 months. Also most of these studies focused on gross domestic product as proxy for measuring economic growth. Aside from this most of the study employed ordinary least square techniques as method of data analysis. Based on these aforementioned gaps, the study examines effect of money market on economic development in Nigeria.

### **3. Methodology**

The data to be used for this study are time series data collected over a successive point in time. Therefore, the research design appropriate for the study, considering the research problem, the questions and the hypotheses to be tested is ex post -facto research design. Ex-post-facto research design is adopted in this study which is characterized with quantitative or numeric description of historical data. The data for this study were obtained from secondary sources. This includes Central Bank of Nigeria Annual Report and CBN Statistical Bulletin. The data covers the period of thirty-three years from 1985-2017. The secondary data will be very appropriate and most be fact that money market indicators are largely quantitative. The study adopts VECM model and this is specified below:

$$\Delta^{k0} UNER_t = \Theta_0 + \sum_{i=1}^n \Theta_1(\Delta^{k1} TB_{t-i}) + \sum_{i=1}^n \Theta_2(\Delta^{k2} 3MTH_{t-i}) + \sum_{i=1}^n \Theta_3(\Delta^{k3} 6MTH_{t-i}) + \sum_{i=1}^n \Theta_4(\Delta^{k4} 12MTH_{t-i}) + \sum_{i=1}^n \Theta_5(\Delta^{k5} Over 12MTH_{t-i}) + \mu_t \dots \dots \dots (3.1)$$

$$\Delta^{k0} UNER_t = \Theta_0 + \sum_{i=1}^n \Theta_1(\Delta^{k1} TB_{t-i}) + \sum_{i=1}^n \Theta_2(\Delta^{k2} 3MTH_{t-i}) + \sum_{i=1}^n \Theta_3(\Delta^{k3} 6MTH_{t-i}) + \sum_{i=1}^n \Theta_4(\Delta^{k4} 12MTH_{t-i}) + \sum_{i=1}^n \Theta_5(\Delta^{k5} Over 12MTH_{t-i}) + \sum_{i=1}^n \Theta_6(ECM_{t-i}) + \mu_t \dots \dots \dots (3.2)$$

UNER represents unemployment rate, TBI represents Treasury Bill Issue, Over 12DR represents Over 12 months deposit rate, 12DR represents 12 months deposit rate, 6DR represents 6 months deposit rate, 3DR represents 3 months deposit rate,  $\Delta$  represents Difference Operator,  $\Theta_0$  and  $\Theta_i$ =Parameters to be estimated,  $t-i$  represents unknown lags to be estimated, ECM represents error correction mechanism and  $\mu_t$  represents the error term.

#### 4. Result and discussion

The data set on the variables for this study is summarized in table 4.1 showing the mean, median, minimum, maximum, standard deviation, skewness , kurtosis among other.

**Table 4.1 Descriptive Statistics**

Statistic	TB	UNER	12MTH	3MTH	6MTH	OVER 12MT
Mean	12.40975	4.661000	12.23969	12.16834	12.26992	12.36169
Median	12.00000	4.403000	10.88000	10.60000	10.94000	10.44000
Maximum	26.90000	7.060000	23.99000	23.60000	23.26000	28.02000
Minimum	3.715000	3.500000	4.704871	5.693061	4.899284	5.460000
Std. Dev.	4.668996	0.919260	5.105390	4.258317	4.628388	5.310947
Skewness	0.834384	1.577450	0.760908	0.842879	0.887710	1.138130
Kurtosis	4.371291	4.726449	2.837180	3.256897	3.142308	3.857118
Jarque-Bera	6.414691	17.78427	3.220850	3.998191	4.362005	8.134512
Probability	0.040464	0.000137	0.199803	0.135458	0.112928	0.017124
Obser.	33	33	33	33	33	33

**Source: Author’s computation from E-view Output (2019)**

Table 4.1 shows the summarized descriptive statistics computed on the series of economic development (proxy with unemployment rate) and money market operations which are proxy with Treasury bill, deposit rate for 3 months, 6month, 12 months and over 12 months respectively. It is remarkable that both the median and average values are positive in each case. The study also observes that there is a significant margin between the median and mean. This means these variables displayed an increasing tendency through the period of investigation. Also the study reveals that the range of these variables, unemployment rate has the lowest range (7.060000- 3.500000) with an associated largest standard deviation value of 0.919260 and this implies that unemployment rate is the least volatile variable among the variable under consideration. In a different token, the deposit rate of over 12 month has the largest range of (28.02000-5.460000) with an associated lowest standard deviation value of 5.310947 and this implies that over 12 months deposit rate is the most volatile variable among the variable under consideration. The scales of skewness with respect to all variables are positively skewed and this implies that they have large values over a short period. The values of kurtosis that are larger than 3 show that Treasury bill, unemployment rate, deposit rate for 3 months, 6 months and over 12 months are leptokurtic and therefore, they have tin tail in their distribution pattern, suggesting that there are presence of outliers or large values in the expected future date. However, while

the deposit rate over 12 months is plytokurtic in nature. Finally, the probability values corresponded to Jarque Bera statistics with respect to 3 month deposit rate, 6 months deposit rate, and 12 months deposit rate are lesser than 5 percent, meaning that the distribution pattern of these variables is not normal. However, the probability values in respect to Treasury bill, unemployment rate, and over 12 month deposit rate are larger than 5 percent. This implies that these variables are not normally distributed. After the description of the data, the study proceed to check the stationarity of the variables using Augmented dickey Fuller mechanism and the result are reported below:

**Table 4.2 Unit Root Test**

Variables	ADF- Stat.	5% CR	Probability	Int.
UNER	-3.542301	-2.971853	0.0479	
I(1)				
TB	-6.252354	-2.960411	0.0000	
I(1)				
3MTH	-6.326070	-2.960411	0.0000	
I(1)				
6MTH	-6.795302	-2.960411	0.0000	
I(1)				
12MTH	-6.322016	-2.960411	0.0000	
I(1)				
Over 12MTH	-7.122386	-2.960411	0.0000	
I(1)				

**Source: Author’s computation from E-view Output (2019)**

From the result above, it shows that all the variable are integrated at first difference i.e. I(1). Thus, the necessary too is Vector error correction mechanism (VECM) to capture the relationship between the market operations and economic development. In view of estimating this relationship there is need for cointegration test which serve as pre-estimation test to confirm if there is establish long run relationship between economic development and money market operations. The result of the cointegration test is presented in Table 4.3 below;

**Table 4.3: Cointegration Test**

No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
<b>Panel A</b>				
None *	0.834612	117.8876	95.75366	0.0007
At most 1	0.567405	63.90374	69.81889	0.1354
At most 2	0.474565	38.76515	47.85613	0.2697
At most 3	0.291874	19.45927	29.79707	0.4603
At most 4	0.242846	9.105250	15.49471	0.3557
At most 5	0.025003	0.759611	3.841466	0.3834
<b>Panel B</b>				
None *	0.834612	53.98390	40.07757	0.0008
At most 1	0.567405	25.13860	33.87687	0.3757
At most 2	0.474565	19.30588	27.58434	0.3913
At most 3	0.291874	10.35402	21.13162	0.7109
At most 4	0.242846	8.345639	14.26460	0.3447
At most 5	0.025003	0.759611	3.841466	0.3834

**Source: Author's computation from E-view Output (2019)**

As shown in table 4.3, the outputs of the trace test are reported in panel A, and those of the maximum Eigen test are presented in panel B. In the first row of panel A, the trace statistic (117.8876) is larger than the 5 percent critical value (95.75366), meaning that the trace test rejects the null hypothesis that there is no cointegration. However, in the second row, the trace statistic (63.90374) is less than the critical value (69.81889), and as such the null hypothesis that there is only one cointegrating vector cannot be rejected. In an analogous vein, the null hypothesis that there is no cointegration is rejected in panel B based on the maximum Eigen value test. So also, the hypothesis of only one cointegrating vector is not rejected. Therefore, the trace and maximum Eigen tests unanimously consent that there is one cointegrating vector. This is also confirmed by the result of the probability values displayed in both panel A and B. This simply implies that there is strong evidence that economic development and money market operations correlate together in the long run. The nature of this long run relationship is shown in table 4.4.

**Table 4.4: Long run cointegration**

Variables	Coefficients	Standard Error	T-Statistics
Prob			
TB(-1)	-1.703007	(0.27100)	[-6.28422]
0.0000			
Over 12MTH(-1)	-0.199262	(0.79663)	[-0.25013]
0.4022			
12MTH(-1)	12.59632	(1.69731)	[ 7.42133]
1.0000			
3MT(-1)	-7.190162	(2.73891)	[-2.62519]
0.0070			
6MTH(-1)	-6.799438	(2.75511)	[-2.46793]
0.0101			

**Source: Author's computation from E-view Output (2019)**

The long run coefficient with respect to Treasury bill is -1.703007 and the associated t-value of -6.28422. This means in the long run Treasury bill will decrease significantly with increase in economic development in Nigeria. The long run coefficient of over 12 months deposit rate is -0.199262 and the associated t-value of -0.25013 and this imply that the deposit rate of over 12 months has a negative but insignificant effect on economic development in Nigeria. The 12 months deposit rate has a coefficient is 12.59632 with associated t-value 7.42133 and this implies the 12 months deposit rate has a positive but insignificant on economic development in Nigeria. The result also shows that the deposit rate for 3 month and 6 month has -7.190162 and -6.799438 with the associated t-value -2.62519 and -2.46793 respectively. This implies that the 3 month and 6 month deposit rate have a negative but significant effect on economic development in Nigeria. The disequilibrium in the long run must be corrected otherwise; long run relationship does not exist. The correction mechanism is referred to error correction model (ECM). The study estimates the ECM coefficient along with short run dynamic coefficients, and the values of these coefficients are presented in table 4.5.

**Table 4.5 Short-run Dynamism**

Variables Prob	Coefficients	Standard Error	T-Statistics
D(UNER(-1)) 0.9349	0.283673	(0.18178)	[ 1.56055]
TB(-1) 0.0002	-0.150979	(0.03681)	[-4.10193]
Over 12MTH(-1) 0.9551	0.328747	(0.18686)	[1.75929]
12MTH(-1) 0.9933	0.651269	(0.24578)	[ 2.64975]
3MT(-1) 0.0095	-0.736223	(0.29491)	[-2.49642]
6MT(-1) 0.0462	-0.438926	(0.25157)	[-1.74476]
ECM(-1) 0.0059	-0.081580	(0.03017)	[-2.70395]

Table 4.5 uniquely presents the coefficients of short run dynamic variables- D(UNER(-1)), D(TB(-1)), D(Over 12MTH(-1)), D(12MTH(-1)), D(6MTH(-1)), D(3MTH(-1)) and ECM coefficient. The dynamic coefficient of unemployment rate at lag 1 is positive. This means an increase in previous unemployment rate in Nigeria could lead to increase in current unemployment rate in the short run. While previous over 12 months deposit rate and 12 months deposit rate influence current unemployment rate positively. Hence, in the short run dynamic changes in the Treasury bill, 6 months deposit rate and 3 months deposit rate have negative effect on unemployment rate. The ECM coefficient is negative -0.081580, suggesting that any disequilibrium can be corrected at the speed or rate of 8 percent within a year. In view of this, there is long run dynamic causality or influence running from money market operations to economic development in Nigeria.

#### **Discussion of findings**

The study found that Treasury bill has a negative effect on economic development and this is contrary to a priori expectation and does not conform to the findings of Ajao and Festus (2011).. Also the over 12 months deposit rate has a negative but insignificant effect on economic development in Nigeria. This does not conform to the finding of Ajao



and Festus (2011) and it is contrary to a priori expectation. The 12 months deposit rate on has a positive but insignificant on economic development in Nigeria. This conforms to the appropriate expectation and is in line with the finding of Ajao and Festus (2011). The result also shows that the deposit rate for 3 month and 6 month has - have a negative but significant effect on economic development in Nigeria. This is does not conform to appropriate expectation and against the findings Ajao and Festus (2011).

## 5. Conclusion and recommendation

The result from the study is inconclusive because some of the money market operations reveals negative effect on economic development and some of the money market operations reveals positive effect on economic development. However, it can be concluded that money market operations have effect on economic development. In line with the conclusion, the follow recommendations are in this study. The Central Bank of Nigeria should implement friendly policies on interest rates on loans so as to encourage credit availability to the government by various institutions. Effective policies that affect will enhance flexibility of Treasury bill as effective tool of money market should be put in place by the Central Bank of Nigeria as this will increase the volume of trading activities in the money market. The study is limited to Nigeria alone, so further studies in this area should consider cross countries in West Africa region.

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**APPENDIX**

year	UNER	TB	3mth	6mth	12month	over 12mth
1985	6.1	8.50	9.25	9.50	9.75	10.00
1986	5.3	8.50	9.25	9.50	9.75	10.00
1987	7	11.75	14.90	15.30	15.10	15.80
1988	5.1	17.50	13.40	12.10	13.70	14.30
1989	4.5	17.50	18.90	21.60	21.40	21.20
1990	3.5	15.00	19.60	20.50	22.10	23.00
1991	5.269	21.00	15.71	17.09	20.10	20.10
1992	5.273	26.90	20.80	22.30	22.10	20.50
1993	4.436	12.50	23.60	23.26	23.99	28.02
1994	4.429	12.50	15.00	15.00	15.00	15.00
1995	4.421	12.25	13.62	13.65	13.96	14.27
1996	4.427	12.00	12.94	13.21	13.43	13.55
1997	4.423	12.95	7.04	7.49	7.46	7.43
1998	4.415	17.00	10.20	10.50	9.98	10.09
1999	4.401	12.00	12.68	12.75	12.59	14.30
2000	4.396	12.95	10.60	10.27	10.67	10.44
2001	4.399	18.88	10.20	10.50	9.98	10.09
2002	4.403	15.02	16.31	16.99	16.50	15.57
2003	4.397	14.21	14.31	13.07	13.04	11.88
2004	4.397	7.00	13.69	12.47	13.32	12.21
2005	4.304	8.80	10.53	10.38	10.82	8.68
2006	4.215	6.91	9.75	9.33	8.35	8.26
2007	4.13	7.025	10.29	9.74	8.10	9.49
2008	4.048	3.715	11.95	11.85	11.84	11.95
2009	3.971	5.595	12.96	13.03	12.85	12.63
2010	3.899	11.155	6.52	6.28	5.67	7.19
2011	3.826	13.6	5.69	4.90	4.70	6.30
2012	3.761	10.42	8.40	7.85	7.18	7.63
2013	3.7	10.42	7.94	7.47	5.54	6.72
2014	4.56	11.995	9.34	9.60	9.16	9.89
2015	4.31	9.14	9.15	9.15	8.68	8.26
2016	7.06	10.85	7.50	7.35	6.22	5.46
2017	7.043	13.99	9.55	10.94	10.88	7.73

Source: Central Bank Statistical Bulletin of various years.