EFFECTS OF THE MONETARY POLICY RATE ON INTEREST RATES IN NIGERIA

Ikechukwu Kelilume, Lagos Business School

ABSTRACT

Monetary policy rate has remained a major potent monetary policy tool used by monetary authorities in setting targets and direction of other rates and in driving the movement of other macroeconomic aggregates in both developed and developing countries. In Nigeria however, the Central Bank has kept monetary policy rate stable at 12 percent between October 2011 and September 2012 but stability in monetary policy rate is hardly reflected in the movement short term and long term interest rates. The aim of this study is to use the multivariate Vector Autoregressive Model to analyze the effects of monetary policy rate on other rates in Nigeria. The study makes use of monthly data from M1:2007 to M9: 2012 to evaluate the cause effect relationships between monetary policy rate and short term and long term rates in Nigeria. The choice of the scope of the study lies in examining the response of interest rates to monetary policy shock since the 2007-2008 global economic crises. Result obtained from this study will be used to track the relative effectiveness of monetary policy in an emerging market where money market instrument is not fully developed.

JEL: E4, E43, E52

KEYWORD: Monetary Policy, Monetary Policy Rates, Interest Rates.

INTRODUCTION

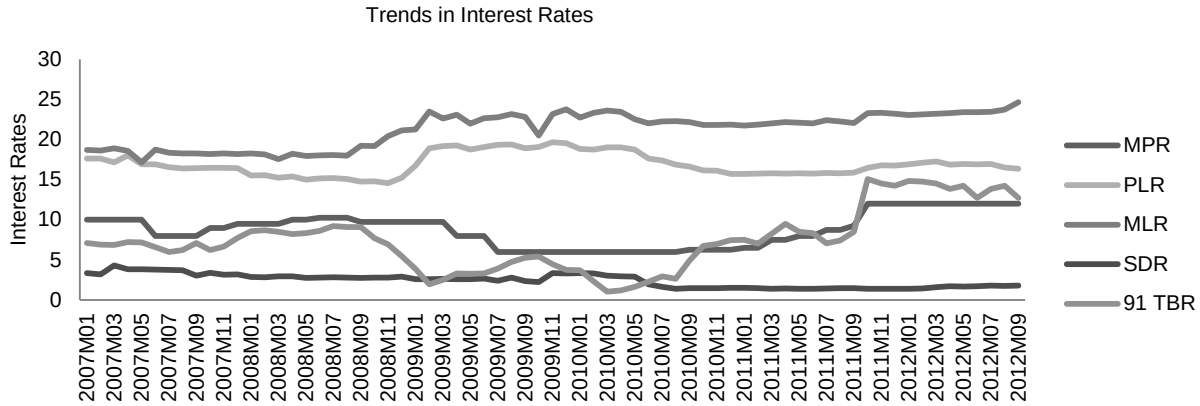
Two major policy instruments used by monetary authorities to influence the level and availability of credit in most developed and emerging market economies is fiscal policy and monetary policy. Of particular interest to the monetary authorities in developing economies is the issue of how monetary policy impacts on some selected macroeconomic target variables which inter alia, includes money supply, equilibrium money stock, interest rates, investment, savings and the level of Gross National Product (GDP). Although, the relative effectiveness of monetary policy in developing countries and emerging market economies has been less successful because of the unsophisticated nature of the money market in most of the economies. There is however, an increasing need to track the sensitivity of interest rates to changes in monetary policy target instrument-the monetary policy rates (MPR). Two decades ago, the empirical literature was heralded with conflicting views on the direction of causation on the monetary transmission mechanism. While prevailing theory such as the term structure of interest rate provides little guide to policy makers as to the size and persistence of the effects of monetary policy rates on short term and long term yields, the expectation hypothesis does not appear to do better in providing the linkage between monetary policy instrument and short term and long term interest rates.

The transmission of monetary policy action is often effected through interest change. Being a cost for borrowing and a reward for lending, the interest rate is an important economic variable which need to be guided so as to achieve economic stability. In a bid to ensure price and financial stability, the Central Bank of Nigeria (CBN) Monetary Policy Committee (MPC) adopted the Monetary Policy Rate (MPR) in place of Minimum Rediscount Rate (MRR) to controls the movement of market interest rate by benchmarking it against the MPR. Generally, a tight monetary policy tends to increase interest rate which impacts the economy by increasing the cost of borrowing and by so doing cut back on investment and the general price level. The reverse situation applies to an easy monetary policy but this may not be the actual behaviour of interest rate in practices. In the wake of the 2007-2008 global financial crises, the

CBN reduced the MPR in an attempt to avert the global uncertainty of recession. The puzzle in the response of market interest rate to monetary policy actions as shown in the trend in figure 1 has left economic analyst with the profound question of the effectiveness of monetary policy in tracking other rates and target variables in Nigeria. To this end, this paper is designed to test the linkage between MPR and other market interest rate in Nigeria over the period 2007 to 2012. The choice of these periods is unique as it marks the period in which monetary authorities carried our several monetary policy actions to check economic recession and contagion from the external economic environment.

Following the introduction section, the rest of the paper will be structured into four sections. Section two reviews the empirical literature while section three deals with the methodology and data. In section four we present the empirical analysis while section five concludes the paper.

Figure 1: Monetary Policy Rate and Interest Rates Movement in Nigeria



The figure shows monthly data of interest rate movement in Nigeria during the period 2007M1-2012M9. The fourth line from the top-right of the chart is the monetary policy rate. Between M1:2007 and M4:2009MPR was a lot stable averaging 5 per cent. Until M10:2011 there was a misalignment between MPR and all other rates. Of particular interest is the savings deposit rate which has remained very low since 2007. All rates however, showed a stable movement between 2011 and 2012 when MPR was fixed at 12 per cent.

LITERATURE REVIEW

The process in which bank interest rates respond to changes in monetary policy rates is referred to as the interest rate pass-through process. This process is simply the rate or process at which the official interest rate is transmitted to other interest rates (Rehman 2009; Kovanen, 2011). Generally, a weak and incomplete interest rate pass-through is an indication of an unhealthy financial system (Aydim, 2007) and the failure of monetary policy to stabilize macroeconomic shocks (Marotta, 2009).

There has been renewed interest in the issues of interest rate pass-through especially with regards to the link between monetary policy rate and short term and long term interest rate. Early studies on the subject matter includes; Cottarelli and Kourelis (1994); Heinemann and Schuler (2002); Mojon (2000); Toolsema, Strum and de Haan (2001); Donnay and Degryse (2001); Petro, McDermott and Tripe (2001); Weth (2002); and De Bondt (2005). The more recent studies on interest rate pass-through include; Hofrnann and Mizen (2004); Sander and Kleimeier (2004); Ghartey (2005); Sorensen and Werner (2006); Sorensen and Werner (2006); Liu, Margaritis and Tourani-Red (2008) Chen, (2009); Banerejee, Bystrov and Mizen (2010); Cas, Carrion-Menendez and Frantischek (2011) and Tia, Sek and Har (2012). The conventional model for analyzing the effects of monetary policy rate on market rates is the Monti-Klein model (Monti 1971, Klein 1971). The Monti-Klein framework assumes that if markets are perfectly competitive then the interest rate pass-through will be full symmetrical and swift in response to monetary policy rate. The model assumes the absence of information asymmetry, switching cost and imperfect competition in financial markets and by so doing making the full pass-through a long run phenomenon

while deviations from long run equilibrium occurs only in the short run. Although, the reality in most markets is that perfect market condition hardly exists as markets generally exist under conditions of imperfect market situations, high switching and menu cost and absence of perfect information. This notwithstanding, some studies have found the Monti-Klein model to be realistic and true in its assumptions. These studies which reflected changes in monetary policy rates in asymmetric and non-linear adjustment includes; Hofmann and Mizen (2004), and Fuertes and Heffernan (2009).

Almost all empirical studies on interest rate pass-through center on investigation of the degree and speed of adjustment of banking rates to changes in money market rates with some degree of variability in terms of short term and long term adjustment of market rates to monetary policy rates. Some studies conclude that interest rate pass-through is weak and incomplete (Kwapil and Scharler 2006; Aydim, 2007; Marotta, 2009; Kovanen 2011), others found interest rate pass-through to be weak in the short run but fully complete in the long run (Weth 2002). A few studies found interest rate pass-through to be fully complete in the short term (Crespo-Cuaresma, Egert, and Reininger 2004). Four major theories exist in the literature to explain the inflexibility of interest rates in the short run. These theories include; the agency cost theory (Stiglitz and Weiss, 1981), the adjustment costs (Cottarelli and Kourelis, 1994), the switching costs (Klemperer, 1987) and the risk sharing cost (Fried and Howitt, 1980).

Recent studies of interest rate pass-through consider the impact of future money market rates on current retail rate setting with the central focus on the search for market efficiency (Bernoth and von Hagen, 2004). In the study conducted by Sander and Kleimerier (2006), it was found that there exists a greater response to anticipated monetary policy changes measures by interest rate features than to unanticipated changes. Other recent studies have gone beyond estimating the degree and speed of adjustment of market interest rates in relation to changes in monetary policy rates to examining the degree and variability of interest rate pass-through across countries and regions (Weth 2002; De Bondt 2005; Sorensen and Werner 2006; Sander and Kleimeier 2006; Banerjee, et al 2010; Cas. et al 2011). These studies shows the degree of interest rate pass-through differ across regions and across countries with common monetary union.

Some studies have found the monetary transmission mechanism to be quick and efficient while other found the effect of monetary policy rate on market rates to be inconclusive. The recent study carried out by Aziakpono, Wilson and Manuel (2007) and Aziakpono and Wilson (2010) attest to this fact. While Aziakpono, Wilson and Manuel (2007), found market interest rates to respond quickly to monetary policy rate, the study conducted by Aziakpono and Wilson (2010) found that commercial Banks lending rates are more rigid in response to positive shocks in monetary policy official rate in South Africa.

In Nigeria, the Central Bank (CBN) Monetary Policy Council (MPC) which derives its legal backing from the various statutes of the bank (CBN Act 1958; Decree No. 3 1997; CBN Act 2007), adopted a new anchor for monetary policy action on December 11, 2006 with the ultimate goal of achieving stability in the domestic currency, prices and ultimate economic stability through interest rates stability around a benchmark called MPR. At inception, MPR was fixed at 10 per cent with a 600 basic spread point making a lower band of 7% and an upper band of 13% based on the current and expected inflation. Since inception, the MPR has been changed about fourteen times most of which was positive and are usually done in anticipation of a raise in the general price level. Adjustment of MPR by MPC has ranged from a decrease of 20% in the wake of the 2007-2008 global economic crisis to an approximately 30% increase in the period between the third quarter 2011 and the fourth quarter of 2011. As shown in figure 2 (see Appendix 1) monetary policy rate (MPR) has remained constant between the third quarter of 2011 and the third quarter of 2012. Although at various periods of the change in MPR, market interest rates exhibited changes in different direction without correspondingly tracking changes in MPR. This according to Romer and Romer (2000) represents a puzzle to policy planners. Given that the relative effectiveness of MPR in tracking other market rates has not been extensively studied in Nigeria, we explore this linkage for Nigeria.

DATA AND METHODOLOGY

Data used for this study is monthly time series observations sourced from the Central Bank of Nigeria Statistical Bulletin covering the periods 2007:M1 to 2012:M9. This period is unique because it tracks Central Bank monetary policy action in the wake of the 2007-2008 financial crisis. The major variables used in the model include monetary policy rate (MPR), savings deposit rate (SDR), interbank rates (IBR), prime lending rate (PLR), maximum lending rate (MLR) and 91 day Treasury bill rate (TBR).

The theoretical base for explaining the linkage between monetary policy rate and short term and long term and long term interest rates is the marginal cost pricing model also referred to as the monetary policy approach (de Bondt, 2005). Following the Monti-Klein framework (Monti 1971; Klein 1971) which assumes the existence a perfectly competitive market devoid of asymmetric information, transaction cost and menu cost, we assume price equals marginal cost. Under this condition, the derivative of price with respect to marginal cost will be unity. If this assumption of perfect competition is relaxed however, the derivative of price with respect to marginal cost becomes less than unity. Applying this framework to the relationship between money market rate and retail rates of interest we develop the model:

$$BRR = f(MPR) \tag{1}$$

Where, BRR is bank retail rates which are in the form of short term interest rates (savings deposit rate (SDR), interbank rates (IBR), prime lending rate (PLR), maximum lending rate (MLR) and long term interest rates in the 91 day Treasury bill rate (TBR). MPR is the monetary policy rate usually set by the monetary policy council (MPC) in Nigeria.

In simple linear estimation form we can expresses equation (3.1) as:

$$SDR_t = \alpha_0 + \alpha_1 MPR_t + U_t \tag{2}$$

$$IBR_t = \beta_0 + \beta_1 MPR_t + U_t \tag{3}$$

$$PLR_t = \delta_0 + \delta_1 MPR_t + U_t \tag{4}$$

$$MLR_t = \phi_0 + \phi_1 MPR_t + U_t \tag{5}$$

$$TBR_t = \lambda_0 + \lambda_1 MPR_t + U_t \tag{6}$$

Where; MPR, monetary policy rate is assumed a proxy for marginal cost price. Parameters $\alpha_1, \beta_1, \delta_1, \phi_1 \text{ and } \lambda_1$ are the coefficient of the pass-through rates, while the parameters $\alpha_0, \beta_0, \delta_0, \phi_0 \text{ and } \lambda_0$ are the constant terms. If the coefficient of the pass-through rate is unity, the transmission of monetary policy rate to other market rates is said to be complete and efficient. However, if the coefficient of the pass through rate is such that it lies between zero and unity, the monetary transmission mechanism is said to be incomplete and inefficient.

To establish the direction of casualty and interdependence between monetary policy rate and other retail rates, we adopt the Vector Autoregressive (VAR) methodology. This methodology is explained in a simplified form if we assume a $n x 1$ vector composed of banking retail rates (Y), we can explain the

VAR as a model that relates current values of Y_t to the past values of Y_t and a $n\,x1$ vector of innovation U_t. This can be expressed simply as;

$$Y_t = \alpha + \phi_1 Y_{t-1} + ... + \phi_p Y_{t-p} + U_t \quad (7)$$

Where; α is a $n\,x1$ vector and $\phi_j's$ are $n\,x\,n$ matrices. U_t is a $n\,x1$ vector of serially uncorrelated random variables with zero mean and a covariance matrix Ω.
The VAR model can be expressed explicitly as;

$$BRR_t = \alpha_1 + \sum_{t=1}^{n} \alpha_{11} BRR_{t-1} + \sum_{t=1}^{n} \alpha_{12} MPR_{t-1} + U_t \quad (8)$$

$$MPR_t = \alpha_2 + \sum_{t=1}^{n} \alpha_{21} MPR_{t-1} + \sum_{t=1}^{n} \alpha_{22} BRR_{t-1} + V_t \quad (9)$$

Where; BRR is banking or market rates of interest in the form of savings deposit rate, interbank rates, prime lending rate, maximum lending rate and the 91 day Treasury bill rate. MPR is the monetary policy rate while U_t and V_t are the uncorrelated error term.

To estimate the impulse response and variance decomposition of monetary policy rate and market rates, we assume that the innovations $U_t = (U_t \text{ and} V_t)$ are functions of some fundamental shocks $\in_t$: such that;

$$U_t = \psi . \in_t \quad (10)$$

Where; $\in_t \sim iidN(0, \Omega)$. These fundamental shocks represent unanticipated deviations of the Central Bank from its monetary policy rule usually termed as monetary policy shocks. To estimate the matrix ψ^* in equation 3.10, we assume that ψ^* is the lower triangle in the 2 x 2 matrix in equation 11.

$$\begin{bmatrix} U_{1,t} \\ U_{2,t} \end{bmatrix} = \begin{bmatrix} y & 0 \\ y & y \end{bmatrix} \begin{bmatrix} \in_{1,t} \\ \in_{2,t} \end{bmatrix} \quad (11)$$

From the ordering in equation 3.11, the innovation, $Y_{1,t}, U_{i,t}$ are not affected by the shocks $\in_{2,t}$ but innovation $U_{2,t}$ is affected by the shock $\in_{i,t}$. We can interpret one of the $\in_t's$ as monetary policy shock and we are interested in finding out how this monetary policy shocks affects other retail rates of interest.

To establish the transmission mechanism between monetary policy rates and short term and long term interest rates, we use the Granger causality test. Usually, the null hypothesis is rejected if the observed F-Statistics exceeds the critical F-values at the usual 1 percent, 5 percent or 10 percent significance levels.

EMPIRICAL ANALYSIS

The result of the effects of monetary policy rate (MPR) on interest rates in Nigeria is summarized in Table 1 and 3. While Table 1, shows the result of the model without considering the stationarity

properties of the variables, Table 2, shows the result of the regression estimate with a consideration of the unit root properties of the variables. Both results reported in Table 1 and 2 compares the results between the response of short term rates (savings deposit rate, interbank lending rate, prime lending rate and maximum lending rate) and long term rate (91 days Treasury bill rates) to changes in monetary policy rates. In Table 3, the results of the interdependency between monetary policy rate and short term and long term interest rates using the granger causality test were reported.

The result from Table 1 shows an interesting pattern of the link between monetary policy rate and retail interest rates in Nigeria. While the interest rate pass-through from monetary policy rate to savings deposit rate and maximum lending rates were incomplete and failing the test of significance on the basis of the traditional t-test, the interest rate pass-through from monetary policy rate into interbank rates, prime lending rates and long term interest rates (Treasury bill rate) were complete and significant on the basis of the traditional t-test.

Furthermore, the result shows that interbank rates and treasury bill rate increases substantially with an increase in monetary policy rate, with both variables passing the test of significance at the 1 per cent level and having a relatively high adjusted coefficient of determination (R^2) value of 0.43 and 0.63 for interbank rate and treasury bill rates respectively.

Table 1: Estimated Result at Their Levels

	SHORT TERM MARKET RATES			**LONG TERM MARKET RATES**	
.	(1, SDR)	(2, IBR)	(3, PLR)	(4,MLR)	(5, TBR)
C	2.7953	-2.5071	19.143	22.169	-5.1494
	(6.5497)***	(-1.4294)	(28.111)***	(19.823)	(-4.3143)***
MPR	-0.0424	1.4258	-0.2528	-0.1045	1.4342
	(-0.8969)	(7.3256)***	(-3.3459)**	(-0.8427)	(10.828)***
R-squared (R^2)	0.0118	0.4447	0.1434	0.0104	0.6363
Adj. R-squared	-0.0028	0.4365	0.1303	-0.0042	0.6309
F-statistic	0.8044	53.66***	11.195***	0.7101	117.26***
Durbin-Watson	0.1194	0.7357	0.1555	0.1148	0.2489

The table reports the regression estimate result over the sample periods 2007:M1-2012:M9 for Variables at levels. The models reported includes: $SDR_t=\alpha_0+\alpha_1 MPR_t+U_t$; $IBR_t=\alpha_0+\alpha_1 MPR_t+U_t$; $PLR_t=\alpha_0+\alpha_1 MPR_t+U_t$;$MLR_t=\alpha_0+\alpha_1 MPR_t+U_t$ *and* $TBR_t=\alpha_0+\alpha_1 MPR_t+U_t$*:: where the dependent variables are savings deposit rate, interbank tare, prime lending rate, maximum lending rate and treasury bill rate. The explanatory variable in all five equations is monetary policy rate (MPR). The figures in parenthesis are the t-statistics and the symbol ***, ** and * indicates significant at the 1, 5 and 10 percent respectively.*

To enable us compare the result obtained at levels of the individual variables with the first difference of the variables given the problems associated with time series data, we proceed to testing the variables for the presence of unit root. The result of the unit root test is reported in Table 2.

Table 2: Unit Root Test for the Variables

Augmented Dickey-Fuller Test					
Variables	Level	Status	First Difference	Status	
MPR	-0.8654	I(0)	-7.8611	I(1)	
SDR	-2.7481	I(0)	-9.7377	I(1)	
IBR	-2.8392	I(0)	-9.0248	I(1)	
PLR	-2.3235	I(0)	-6.0145		I(1)
MLR	-2.5526	I(0)	-10.784		I(1)
TBR	-1.4153	I(0)	-6.6138		I(1)

The table shows the result of the Augmented Dickey-Fuller (ADF) set of unit root test at the levels of the individual variables and at their first difference with I(0) indicating integrated of order 0 and I(1) indicating integrated of order 1.

The result shows that all the variables were not stationary at their individual level hence the need for differencing of the variables reported in Table 1. This is clearly seen when we compare the Mac-kinnon critical value reported in Table 3, with Augmented Dickey-Fuller unit root variables at the individual levels and their corresponding first difference.

Table 3: Mac-Kinnon Critical Value for Rejecting the Null Hypothesis of Unit Root

Augmented Dickey-Fuller Test Criteria		
Critical Values	ADF at Levels	ADF at First Difference
1%	-4.0987	-4.1009
5%	-3.4772	-3.4783
10%	-3.1661	-3.1667

The table shows the Mac-Kinnon critical value for rejecting the hull hypothesis of unit root in the model. We reject the null hypothesis of no unit root if the critical Mac-Kinnon value greater than the observed ADF tau statistics at the 1, 5 and 10 percent levels respectively.

Table 4 shows the result of the regression estimate after first differencing. From the result reported in Table 2, all the variables became stationary after first differencing. The result obtained after first differencing appears to be similar with the result reported in Table 1. With the exception of maximum lending rate, monetary policy rate had a positive impact on interbank rate, savings deposit rate, prime lending rate and treasury bill rate. However, the pass through of monetary policy rate was only complete in relation to interbank rate where the coefficient of interbank rate was positive and greater than unity.

Table 4: Estimated Result at Their First Difference

SHORT TERM MARKET RATES				**LONG TERM MARKET RATES**	
.	(1, SDR)	(2, IBR)	(3, PLR)	(4,MLR)	(5, TBR)
C	- 0.0244	0.0111	-0.0206	0.0893	-0.0608
	(-0.7151)	(0.0312)	(-0.3483)	(1.0058)	(0.4597)
D(MPR)	0.0426	1.1075	0.0670	-0.0520	0.7577
	(0.7177)	(1.7998)**	(0.6521)	(-0.3383)	(3.3051)***
R-squared (R^2)	0.0077	0.0467	0.0064	0.0017	0.1420
Adj. R-squared	-0.0072	0.0323	- 0.0086	-0.0133	0.1290
F-statistic	0.5150	3.2392**	0.4252	0.1144	10.923***
Durbin-Watson	2.3454	2.3270	1.4638	2.5543	1.6885

The table reports result for differenced regression estimate over the sample periods 2007:M1-2012:M9. The models reported includes: $d(SDR_t)=\alpha_0+\alpha_1 d(MPR_t)+U_t$; $d(IBR_t)=\alpha_0+\alpha_1 d(MPR_t)+U_t$; $d(PLR_t)=\alpha_0+\alpha_1 d(MPR_t)+U_t$; $d(MLR_t)=\alpha_0+\alpha_1 d(MPR_t)+U_t$ *and* $d(TBR_t)=\alpha_0+\alpha_1 d(MPR_t)+U_{tt}$ *: where the dependent variables are savings deposit rate, interbank tare, prime lending rate, maximum lending rate and treasury bill rate respectively. The explanatory variable in all five equations is monetary policy rate (MPR). The figures in parenthesis are the t-statistics and the symbol ***, ** and * indicates significant at the 1, 5 and 10 percent respectively.*

Both results give an idea of the relative effectiveness of monetary policy in tracking other rates in Nigeria. An interesting finding of the study is that savings deposit rate does not respond to changes in monetary policy rate while the rate of adjustment of Treasury bill rate to monetary policy rate is weak as indicated by the difference series. Both results show the response of interbank rate to monetary policy rate to be strong and positive which has strong implication for investment in Nigeria.

In Table 5, we report the test of the interdependencies between the variables and the response time of retail interest rate to changes in monetary policy rate. The result indicates that monetary policy granger causes only interbank rates with the effect almost immediately. Also of interest to us is the fact that there appears to be a bi-directional relationship between monetary policy rate and interbank rate. This is indicated by the high and significant F-statistics values of 12.6 and 4.8 respectively with the values passing the test of significance at the 1 percent level. Other notable findings from the granger casualty test shows that savings deposit rate, prime lending rate and Treasury bill rate granger causes monetary policy rate and not the other way round.

Table 5: Granger Causality Test

		Augmented Dickey-Fuller Test Criteria
Direction of Causality	Lag Length	F-Statistics
ΔMPR → ΔSDR	1	0.5107
ΔSDR → ΔMPR	1	5.0734***
ΔMPR → ΔIBR	1	12.626***
ΔIBR → ΔMPR	1	4.8351***
ΔMPR → ΔPLR	2	0.0278
ΔPLR → ΔMPR	2	5.0295***
ΔMPR → ΔMLR	1	0.8077
ΔMLR → ΔMPR	1	0.0203
ΔMPR → ΔTBR	1	0.1758
ΔTBR → ΔMPR	1	7.8407***

*The table shows the granger casualty of interdependencies between monetary policy rate and retail interest rate. The symbol Δrepresents change in the one variable in response to change in the other variable in the model. In the table, monetary policy exhibits a unidirectional relationship with interbank rate with the shock taking place immediately. The *** indicates significance at the 1per cent level.*

CONCLUSION

This study set out to analyse the effect of monetary policy rate on interest rates in Nigeria over the sampling periods 2007-2012. The study utilized monthly time series data obtained from the Central bank of Nigerian Statistical Bulletin over the period (2007:M1-2012:M9). The choice of this period is remarkable as it marked the period of the change of the Central Bank from the use of minimum rediscount rates (MRR) to monetary policy rate (MPR) as the benchmark rate of interest for the country. The period is also unique as it coincided with period in which the Central Banks of most countries responded to the 2007-2008 global financial crises with substantial use of monetary policy tools.

The major findings of this study is that the pass-through of monetary policy rate into short term and long term retail interest rates in Nigeria is sticky. The only evidence of the effectiveness of monetary policy can be seen only in the relationship between monetary policy rate and interbank rates. The low pass-through rate evident in the study could be easily explained by the presence of high menu and transaction cost and imperfect financial market condition. The weak link between monetary policy rate and savings deposit rate can be explained with the low savings incentives. Overall, the study reveals that the continuous use of monetary policy rate (MPR) by the Central Bank of Nigeria as the benchmark rate for tracking the movement of other market rates of interest and maintaining economic stability is suspect and calls for an immediate review. Monetary policy changes through variation in MPR or stability in MPR as has been the case between 2011:M9- 2012:M9 (see Appendix 1.) has produced contradictory result in all the retail market rates with the exception of Treasury bill rate which seems to track movement in monetary policy rate as clearly visible in the trend in figure 1.

This result is in line with the earlier findings of Salami and Kelikume (2012) that continuous use of monetary policy tools to maintain price stability is not likely to yield the desired medium to long-term monetary policy goals.

The major limitation of this study is the short time span of 2007-2012. Although this problem was successfully addressed with monthly time series data it would have been useful if we compare the interest rate pass through using annual and quarterly time series data over a longer period. Another limitation is that the study did not track the performance of monetary policy in the era of minimum rediscount rates. A comparison of the effectiveness of monetary policy in the era of minimum rediscount rates and monetary policy rate would shed more light into the effects of monetary policy rate on other market rates in Nigeria. These limitations notwithstanding, the study generally shows weak interest rate pass-through in Nigeria.

Appendix 1: Trend in Monetary Policy Rate

Quarter	Monetary Policy Rate	Percentage Change	Direction of Change
2007 Q1	10		
2007 Q2	8	-20	Decrease
2007 Q3	8	0	Constant
2007 Q4	9.5	18.75	Increase
2008 Q1	9.5	0	Constant
2008 Q2	10.25	7.89	Increase
2008 Q3	9.75	-4.87	Decrease
2008 Q4	9.75	0	Constant
2009 Q1	9.75	0	Constant
2009 Q2	8	-17.94	Decrease
2009 Q3	6	-25	Decrease
2009 Q4	6	0	Constant
2010 Q1	6	0	Constant
2010 Q2	6	0	Constant
2010 Q3	6.25	4.16	Increase
2010 Q4	6.25	0	Constant
2011 Q1	7.5	20	Increase
2011 Q2	8	6.66	Increase
2011 Q3	9.25	15.62	Increase
2011 Q4	12	29.72	Increase
2012 Q1	12	0	Constant
2012 Q2	12	0	Constant
2012 Q3	12	0	Constant

The table shows the change in monetary policy rate over the period per quarter from 2007 Q1 to 2012 Q3. The trend shows that with the exception of the periods 2009 Q 3 to 2010 Q2 and 2011 Q4 to 2012 Q3, monetary policy rate was either increased or reduced to reflect the policy stand of the Central Bank of Nigeria (CBN).

REFERENCES

Aziakpono, M. J. and Wilson, M. K. (2010) ‘‘Interest rate pass-through and monetary policy regimes in South Africa,’’ *Paper for Presentation at the CSAE Conference, 21−23 March, Oxford University, UK*

Aziakpono, M. J., Wilson, M. K. and Manuel, J (2007) ‘‘Adjustment of commercial banks ‟ interest rates and the effectiveness of monetary policy in South Africa,’’ *The African Finance Journal*, Vol. 9(1), p. 1−20

Aydin, H. I (2007) ‘‘Interest rate pass-through in Turkey,’’ *The Central Bank of the Republic of Turkey Research and Monetary Policy Department, Working Paper No. 5*

Banerjee, A., Bystrov, V. and Mizen, P (2010) ‘‘Interest rate Pass-Through in the Major European Economies - The Role of Expectations,’’ *Discussion Papers No. 03, University of Nottingham, Centre for Finance, Credit and Macroeconomics (CFCM)*

Bernoth, K., and Von Hagen, J. (2004) ‘‘Euribor futures market: efficiency and the impact of ECB policy announcements’’ *International Finance* (7), 1-24

Chen, C (2009), “Bank Efficiency in Sub-Saharan African Middle-Income Countries,’’ *International Monetary Fund Working Paper No.14*

Cottarelli, C. and Kourelis, A (1994) ‘‘Financial structure, bank lending rates, and the transmission mechanism of monetary policy,’’ *International Monetary Fund Staff Papers*, Vol. 41(4), p. 587- 623

Crespo-Cuaresma, J., Égert, B. and Reininger, T (2004) ‘‘Interest rate pass-through in New EU Member States: The Case of the Czech Republic, Hungary and Poland. *William Davidson Institute. At The University of Michigan Business School Working Paper No. 671*

Donnay, M. and Degryse, H (2001) ‘‘Bank lending rate pass-through and differences in the transmission of a single EMU monetary policy,’ *Discussion Paper, Center for Economic Studies, K.U. Leuven*

Bondt, G. de (2005) ‘‘Interest rate pass-through: Empirical results for the Euro area. *German Economic Review*, Vol. 6(1), p. 37-78

Fried, J. and Howitt, P. (1980) ‘‘Credit rationing and implicit contract theory,’’ *Journal of Money, Credit and Banking*, Vol. 12(3), p. 471 – 487

Fuertes, A.M. and Heffernan, S. A (2009) ‘‘Interest rate transmission in the UK: A comparative analysis across financial firms and products’’ *International Journal of Finance and Economics* Vol. 14 (1), p. 45–63

Ghartey, Edward E. (2005) “Monetary Policy on Ghana’s Term Structure of Interest Rates: Effects and Implications,” *No. 8, The Institute of Economic Affairs, Accra, Ghana*

Heinemann, F. and Schüler, M (2002) ‘‘Integration Benefits on EU Retail Credit Markets-Evidence from Interest Rate Pass-through,’’ *Centre for European Economic Research (ZEW), Mannheim* Discussion Paper No. 26

Hofmann, Boris and Mizen, Paul (2004) “Interest Rate Pass-Through and Monetary Transmission: Evidence from Individual Financial Institutions’ Retail Rates,’’ *Economica*, Vol. 71, p. 99-123

Kovanen Arto (2011) ‘‘Monetary Policy Transmission in Ghana’’: Does the Interest Rate Channel Work? *International Monetary Fund Working paper No 275*

Klein, Michael A. (1971) ‘‘A Theory of the Banking Firm,’’ *Journal of Money, Credit, and Banking*, Vol. 3(3) 205-218

Klemperer, Paul (1987) ‘‘Markets with consumer switching costs,’’ *The Quarterly Journal of Economics*, Vol. 102(2), p. 375-394

Kwapil, Claudia and Johann Scharler, (2007) “Interest Rate Pass-Through, Monetary Policy Rules and Macroeconomic Stability,” *Journal of International Money and Finance*, Vol. 29(2), p. 236-251

Liu, M., Margaritis D. and Tourani-Rad, A (2008) “Monetary Policy Transparency and Pass-Through of Retail Interest Rates,” *Journal of Banking and Finance*, Vol. 32, p. 501-511

Marotta Giuseppe (2009) ‘‘Structural breaks in the lending interest rate pass-through and the Euro’’ *Economic Modeling*, Vol. 26(1), p. 191-205

Mizen, P. and B. Hofmann (2002) ‘‘Base Rate Pass-Through: Evidence from Banks’ and Building Societies’ Retail Rates’, *Bank of England* Working Paper 170

Mojon, B. (2000) ‘‘Financial structure and the interest rate channel of ECB monetary policy,’’ Working Paper No 40

Monti, M. (1971) ‘‘A theoretical model of bank behaviour and its implications for monetary policy,’’ *L’Industria*, 2, 165-191

Petro B., McDermott J. and Tripe, D (2001) ‘‘The link between the Official Cash Rate (OCR) and market interest rates - A New Zealand perspective".

Romer, C. and Romer, D. (2000) ‘‘Federal Reserve Information and the Behaviour of Interest rates,’’ *American Economic Review*, Vol. 90, p. 429-457

Salami, A. and Kelikume, I. (2012) “Is Inflation Always and Everywhere a Monetary phenomenon?” The case of Nigeria,’’ *The International Journal of Business and Finance Research*, Vol. 7(2), p. 105-114

Sander, H. and Kleimeier, S. (2004) ‘‘Convergence in Eurozone retail banking: What interest rate pass-through tells us about monetary policy transmission, competition and integration,’’ *Journal of International Money and Finance*, Vol. 23, p. 461–492

Sander, H. and Kleimeier S. (2006), “Interest Rate Pass-Through in the Common Monetary Area of the SACU Countries,” *South African Journal of Economics*, Vol. 74(2), p. 215-29

Sorensen, C.K. and Werner, T. (2006) ‘‘Bank Interest Rate Pass-Through in the Euro Area: A Cross Country Comparison,’’ *European Central Bank* Working Paper, 580

Stiglitz, J.E. and Weiss, A (1981) ‘‘Credit rationing in markets with incomplete information,’’ *The American Economic Review*, Vol. 71(3), p. 393–410

Toolsema, L., Sturm, J. and Dehaan, J. (2001) ‘‘Convergence of pass-through from money market to lending rates in EMU countries: New evidence,’’ *University of Groningen, Centre for Economic Research, Netherlands CCSO* Working Papers

Ur Rehman, H. (2009) ‘‘Interest rate pass-through and banking market Integration in ASEAN: A Cross Country Comparison’’

Weth, M. (2002) ‘‘The pass-through from market interest rates to bank lending rates in Germany,’’ *Economic Research Centre of The Deustche Bundesbank*, Discussion Paper No. 11

ACKNOWLEDGE

The Author would like to thank the editor of the International Journal of Business and Finance Research, the anonymous reviewers and the management of the Lagos Business School for funding this research.

BIOGRAPHY

Ikechukwu Kelikume is currently a doctoral student of the Swiss University of Economics (SMC University, Switzerland) and leads sessions in Microeconomic and macroeconomic environment of business at the Lagos Business School. He researches and consults in areas which include macroeconomic modeling, financial and monetary economics as well as econometrics and quantitative methods in economics. +2348137978069, ikelikume@lbs.edu.ng