



Gusau Journal of Accounting and Finance (GUJAF)

Vol. 2 Issue 3, April, 2021 ISSN: 2756-6897

A Publication of
Department of Accounting and Finance,
Faculty of Management and Social Sciences,
Federal University Gusau, Zamfara State –Nigeria

INTEREST RATE RESPONSES TO MONETARY POLICY COMMITTEE MEETINGS/COMMUNIQUE IN NIGERIA

Muti Abdulganiyu

Department of Economics
Federal University Gusau, Zamfara State
+238134539669, mutiuganiyu1031@gmail.com

Hussaini Dambo

Department of Economics
Federal University Gusau, Zamfara State
+238032369836, useiy2009@gmail.com

Abstract

In recent time the Central Banks cross the globe employ a range of avenues to communicate their monetary policy decisions and explain to financial markets and the general public the reason for their policy actions. This communication, in turn, gives signals to the financial markets regarding the future trajectories of governmental activities. This study therefore investigated the sensitivity of interest rate to MPC communication from 1st January, 2010 to 30th June, 2020 in Nigeria. Series of test were carryout and EGARCH was chosen as the appropriate techniques in which dummy variable was used to capture the meeting days in the variance equation. Data of monetary policy were sourced from CBN website. The results of an EGARCH model show that the communications between Central Bank and the money market are considerably informative and therefore assist to reduce market interest rates' volatility. The study has so concluded that the communication from the Central Bank of Nigeria has an impact on the desired direction of interests. One policy implication of this conclusion is that it is clear enough about the desired policy orientation for the future that CBN communique substance of MPC meetings will guide the market in the proper way. This is consistent with the literature that if Central Bank opens the foundations for monetary policy implementation up to the markets, it raises the odds of controlling agents' expectations. Therefore the study recommends that the meeting should be sustained.

Keywords: MPC, EGARCH, Interest Rate, Communications, Money Market and CBN

1. Introduction

Since the introduction of the indirect, market-based strategy in 1993, the conduct of monetary policy in Nigeria has undergone major changes. Thus, the Open Market Activity (OMO) has become a major monetary policy instrument, aided, of course, by other conventional instruments (Blinder, Ehrmann, Fratzscher, De Haan, and Jansen, 2008). Indeed, when OMO was to be performed, the information content of the correspondence from the Central Bank was restricted to the policy direction, not the extent of the expected shift in the supply of money or interest rate (Guthrie Wright, 2000). The economy and the public were left to conclude from the quantum of open market sales or transactions the extent of the change in money supply. The old theoretical idea that monetary policy had to surprise the public was the basis of this hidden role of Central Banks, since only unanticipated changes in money issues for output stabilization were necessary (Binder, et al., 2008). This had a significant effect on Central Bank communication (CBC) design and policy. Therefore, Central Banks were cautious not to make it possible to completely predict all the changes in the supply of money by not supplying any information that would directly signal the future course of monetary policy. The Central Bank was neither supposed to interact effectively with the market nor to be clear about the way monetary policy decisions were made. This

perspective has been modified to its extreme opposite by a variety of incidents in the last two decades and Such events include, first, the increased independence given to many Central Banks, which has increased the need for transparency and, subsequently, for communication. Second, the adoption of inflation targeting (IT) by a growing number of countries has put great emphasis on Central Bank contact and transparency since its introduction by New Zealand in 1990. Third, the development of financial markets has intensified the value of contact, primarily because of the demands of market participants (Amato, Morris & Shin, 2002).

Modern Central Banks are attempting to convey their policy decisions in the most methodical and efficient manner possible, as well as to be transparent about the processes, procedures, and assumptions that underpin such judgments. It has now become regular practice for Central Banks to attempt to telegraph to the market the likely direction of their monetary policy through various communication channels (Reserve Bank of New Zealand, 1997; Daw, Klaes, & Montagnoli, 2015; and Amato et al., 2002). As a result of these developments, a new communication regime has emerged, in which Central Banks systematically use a range of communication channels to influence and control market expectations. The ability of Central Banks to alter market perceptions in the desired direction may be limited by their credibility and transparency. Although credibility is gained when the Central Bank consistently hits its aim, openness or communication increases credibility by proving to the market the political independence of any monetary policy decision. As a result, monetary decisions are now made by an independent Monetary Policy Committee (MPC), which is likewise extremely open. The minutes of its sessions are promptly made public, together with a communiqué that not only explains the rationale for the decisions reached, but also expresses the Committee's belief in the potential of the project course of monetary policy Market perceptions of the future trajectory of inflation and short-term interest rates are influenced by signals emanating from this channel of communication.

According to the interest rate term structure's expectations concept, expected future short-term interest rates have an impact on longer-term interest rates. This means that if the Central Bank can persuade the market that higher potential short-term rates are available, it can raise existing longerterm rates without having to raise short-term (official) rates. Furthermore, while communicationbased signaling can be a more effective policy instrument in some cases, there are others. Because of long policy lags, signaling could be useful in situations where a Central Bank has knowledge about a situation that requires intervention in the near future but cannot utilize conventional instruments (Morris & Shin, 2002). As a result, monetary policy communications will improve the effectiveness of monetary policy by indicating its intent or signaling (Blinder, et al., 2008, Amato et al., 2002 and Andersson et al., 2012). The theoretical literature on the sensitivity of contact on monetary policy is well established (Ehrmann & Fratzcher, 2017).

Furthermore, while there is a rising empirical literature on the effectiveness of Central Bank communication, there is a dearth of evidence from developing countries, particularly those in SubSaharan Africa. This research attempts to contribute to the field by quantifying the impacts of Central Bank interaction on selected money market interest rates in Nigeria. The monetary authorities care about whether a type of Central Bank communication effects monetary policy outcomes for at least two reasons: First, signaling could be utilized as a monetary policy instrument if it is discovered that contact has a significant impact on, say, the market interest rate. As a result, the Central Bank will need to develop an effective communication strategy that allows expectations

to be managed in the correct direction. Second, because it has the potential to enhance market volatility, scientific awareness of its impact would highlight the risk of poor or noisy communication, making it undesirable.

To forecast the outcome, this study calculates the impact of monetary policy signals that accompany one type of Central Bank communication, the MPC communiqué and minutes of its meetings, on daily money market rates from May 2010 to July 2020. The study tracks the current consequences of policy conduct in response to the communiqués. It is discovered that money market rates were significantly more volatile in the weeks following the communiqué's release than on previous days. The study's empirical question is whether such communications and signals have discrete and independent effects on interest rates, hence improving monetary policy effectiveness in Nigeria. The monetary authorities, particularly the MPC, will surely benefit from the empirical response to this question.

Consequently, the main objective of this research is to find out if MPC communications can be used as a substitute or supplement to achieve share price stability in Nigeria.

2.1 Literature Review and Theoretical Modeling

Monetary policy tightening is a term used by Central Banks to describe any measure taken by them to either reduce expenditure in a fast-growing economy or to contain increasing inflation. The Central Bank usually tightens monetary conditions by raising its main short-term interest rate, which boosts the cost of borrowing and significantly lowers its attractiveness. Making liquidity in an economy less available by boosting credit standards or credentials, sucking up cash through government bond purchases, and increasing the bank's demand for reserves are all ways to tighten monetary policy. Monetary tightening can be achieved by increasing interest rates to make the return on that currency more attractive in comparison to other currencies, in addition to raising borrowing costs and lowering credit supply. The objectives, strategy, economic prognosis, and outlook for future policy actions are all part of the Central Bank's public communication. What effect does information on these four elements of monetary policy have on its outcomes? Expectations could be one path to take. The power of the Central Bank to impact the economy is widely acknowledged to be dependent on its capacity to influence investor expectations about the likely direction of overnight interest rates, rather than just the current level. This is because most economic options are based on long-term prices, such as: The expectation theory of term structure only illustrates the relationship between short and long term rates. This provides a useful framework for monetary policymakers, financial market practitioners, and academics to examine interest rates. (see for instance, Piazzesi, (2005); Poole, (2005) and Refet & Jonathan (2010)). Mainly, the theory establishes that long term rates are largely influenced by the expectation of future short term rates. According to Blinder et al (2008), expectation theory of term structure states that long term interest rate depends on the term premium plus the average of current short term rate and the sequence of future expected short term rate. This is expressed in equation (1) $R_t = \alpha_0 + (1/n) (r_t + r^e_{t+1} + r^e_{t+2} + r^e_{t-n-1}) + U_{1t}$ ----- (i)

Where R_t , α_0 , r_t are the long-term rate, term premium, and current short-term rate respectively and $r^e_{t+1} + r^e_{t+2} \dots$ are streams of future short-term rate. The U_{1t} captures other factors. As shown in this equation, expectations play a vital role in determining longer-term rates. (Sellon, 2004).

Equations (2) – (4) apply equation 1 to selected maturities to demonstrate the link between these rates and expected future monetary policy decisions.

$$\text{6 months rate} = \text{term premium} + 1/6(\text{1month rate} + \text{sum of expected 1month rate over 5months}) - \text{-----(ii)}$$

$$\text{1-year rate} = \text{term premium} + 1/12(\text{1month rate} + \text{sum of expected 1month rate over 11months}) \text{----- (iii)}$$

$$\text{2-year rate} = \text{term premium} + 1/24(\text{1month rate} + \text{sum of expected 1month rate over 23months}) \text{----- (iv)}$$

The one-month rate is related to the present policy decision, while the one-month rates for the next 5, 11, and 23 months are tied to the expected decision in each month for the rest of the maturity term, according to equations (2)-(4). Extending this logic, Kozicki and Sellon (2005) argue that because the term premium can be further decomposed into inflation risk expectation premium and other risk premium components, a portion of the term premium can also be connected to the expected level of decisions. This implies that a Central Bank does an effective and efficient management of interest rates when it communicates to reveal its view about the economic outlook and future short-term rate (policy rate).

At least three conclusions can be taken from the preceding. First, markets' expectations of a future hike in the policy rate will cause interest rates to climb across the board. As a result, interest rates of various maturities tend to move in lockstep. Second, while interest rates of various maturities move in anticipation of the predicted change in the policy rate, minor or no fluctuations in these rates on the day the policy rate is adjusted indicates that the market anticipates the policy rate change well. Large variances in market rates on the day the policy rate is changed will reflect the market's inability to foresee the change in policy rate, because the market will react considerably when the change in policy rate departs from their expectations. Third, because these rates are averages, the short term rates reflect the policy rate's movement more than the longer term rates. For example, a 50-basis-point increase in the policy rate has substantially higher impacts on equation (2.2) than on equations (2.3) and (2.4); and on equation (2.3) than on equation (2.4). (2.4). These fundamental facts have monetary policy implications. That is, the farther the ability of a Central Bank to communicate its view about the economic outlook and the stance of monetary policy in the future to the market, the better the outcome of monetary policy.

Ever since the revolution in the new thinking about Central Bank communications, empirical evidences have continued to gain increasing attention by researchers on numerous issues.

Smales (2017), went a step farther in determining the direction of the effect of Central Bank communication. According to a study conducted in Australia by Srnales (2011), the RBA's signals not only have a considerable impact on interest rate futures, but also drive them in the desired direction. In other words, the RBA's signals improve interest rate futures market predictability, coordinate expectations, and therefore minimize uncertainty and volatility. This is in line with the findings of Jan-Egbert Sturm and Jakob De Haan (2011), who found that the ECB's communication drives interest rates in the desired direction. Their findings show that statements from the bank implying tightening, easing, or neutral result in higher, lower, or no change in rates, accordingly.

Giorgio et al (2010) found that confusing ECB messages effect volatility and shift money market rates away from the policy rate, which runs counter to these findings.

Middeldorp and Rosenkranz (2011), Mariscal and Howells (2013), and Middeldorp (2016) discovered that Federal Reserve Bank communications have a considerable impact on interest rates of various maturities. Anderson, Dillen, and Sellin (2012); and Sanusi (2011a and 2011b) revealed similar effects for Swedish Risk Bank, Bank of England, and CBN, respectively, in line with earlier research. Jansen and Haan (2012), on the other hand, give a result for European Central Banks that differs from the prior findings. In comparison to inaction and economic sentiment, they discovered that the ECB's only forecast its interest rate decision to a smaller extent. In a study of six Central Banks for Australia, Canada, the Eurozone, New Zealand, the United Kingdom, and the United States, Berger, De Haan, and Sturm (2010) and Sturm, De Haan, & Sturm (2018) validated Jansen and Haans (2012) findings.

Furthermore, empirical studies reveal that the impacts of communication on interest rates might vary depending on the communication channel as well as the maturity of the communication. For instance, a study by Middeldorp, (2016) suggests that FOMC statement moves interest rates of short span horizon, while congregational testimony moves interest rate of longer term maturity. Trebbi (2013) findings disagree with Middeldorp, (2016) findings. According to them, FOMC statement has the dominant effect on long-term rates. And that policy rate largely influences the short term nominal treasury yield. Anderson et al (2012) found a significant effect of Swedish Central Bank speeches on longer interest rates than repo rate which is a short term rate. However, Fay and Grevelle (2010) found out that Canada's Central Banks move interest of shortterm.

While Central Bank communication matters, the forms which Central Banks communicate have different effects as provided by the empirical evidences. That is, the empirical evidences on this issue are rather inconclusive across countries. Anderson et al (2012) Makram El-Shagi and Alexander Jung (2015), found speeches of Sweden Central Bank to have the highest effect in the vector of communication channels. But inflation reports and minutes of the MPC meetings appear to have less effect on the Swedish term structure of interest rates.

In a similar vein, Fay and Gravelle (2010) showed that speeches of Central Bank are significant in influencing interest rate. For Federal Reserve Board, Kohn and Sack (2013) found significant effects of federal open market committee statements and congregational testimony of chairman Greenspan on interest rate. This somehow contradicts Anderson et al (2012) findings. On the other hand, Reeves and Sawicki (2015) provided evidence which shows the reverse of Anderson's et al (2012) findings. To them, MPC minutes and inflation reports of bank of the England influence financial market prices most, while speeches and parliamentary committee hearings have less impact. Thus, Rezessy (2013). agree that institutional framework and communication strategies of Central Banks differ across countries which consequently make their comparisim of communication channels across countries difficult. In a systematization of empirical evidences show that the most effective channels of Central Bank communication are statements and press conferences. While Ranaldo,& Rossi(2010) in a cross country study of six Central Banks discovered that the most important channel of communication are economic commentary accompanying rates moves and parliamentary hearings. And that minute of meeting and speeches appear to be less important.

This contrasts strongly with the analysis of transparency in models from the 1970s through 1990s in which policy could only be effective if it were opaque and able to surprise private agents. Central Banks increasingly recognize the importance of communication so that the public understands the systematic nature of the policy. This recognition has played a large part in motivating the greater transparency with which policy is now conducted Carvalho and Nechio (2014), provide an index of transparency for a set of developed economies that includes some inflation targets (Australia, Canada, New Zealand, Sweden, and the UK) as well as non-targets (Japan, Switzerland, and the US). They found that between 1998 and 2002, transparency, increased for virtually all the central banks they studied. Even the Federal Reserve, which has so far resisted calls to establish a formal inflation target, has moved to make its policy practices more transparent.

To summarize, the empirical research examined suggest that interest rates are influenced by Central Bank communication. However, the direction of the effects is still unclear, because although some researches show that Central Bank communications have a beneficial impact on interest rates, others claim that they have a detrimental one. Furthermore, these research are primarily from other countries, and there are little studies on this topic in Nigeria, particularly on the direction of the impacts. To that purpose, this research work fills a significant gap in the existing research. It determines the direction of interest rate effects from CBN communication. This builds on Sanusi's findings (2011a and 2011b), which demonstrate that CBN communications have a considerable impact on interest rates, but do not show whether they change them in the intended direction.

The theoretical framework for this study is the expectation theory of term structure of interest rates. As the review of literature reveals, the term structure of interest rates show that Central Bank communication influences longer term rates by affecting expectations (see Blinder et al, 2008).

3 Methodology and Data

The study designs and estimates a variant of the ARCH model, the Exponential Generalized Autoregression Conditional Heteroscedasticity model (EGARCH), to meet the study's main goal of examining the effect of Central Bank communication on the interest rate. Our understanding of the effect of communication on the interest rate, as well as the nature of the data high frequency, influenced our decision to use this model. If communication has an impact on the creation of interest rates, we should anticipate the publication of such information to reduce noise and boost signals, lowering the signal-to-noise ratio. As a result, the interest rate and exchange rate volatility will alter. As a result, utilizing the EGARCH model to represent volatility would allow us to meet the study's goal.

For the study, daily interest rate time series data from 2010 to 2020 were employed. This study's data is primarily based on secondary sources obtained from the Central Bank of Nigeria (CBN).

The study considered the daily interbank rates of different maturities from Monday to Friday. These rates include the call rate, 7days rate, 30days rate, 60days rate, 90days rate, 180days rate and 365days rate. The monetary instrument to be consider are: the monetary policy rate (MPR), liquidity ratio (LR), cash reserve ratio (CRR) and communication signal. To control for

macroeconomic news effect, inflation rate will be use. All this will be collected from CBN’s official website.

Mean equation

$$R_{t,i} = \beta_0 + \sum_{d=1}^k \beta_g R_{t-g}^i + \sum_{\alpha=1} \theta_{\alpha,t} M_{\alpha,t} + \delta M_{tac} + \phi Z_{t0} + \epsilon_t \dots\dots\dots(3.1)$$

Where:

- R_t^i = Interest rate of different maturities
- R_{t-g}^i = lag(s) of interest rate to control for persistence
- $M_{\alpha,t}$ = monetary policy instrument
- M_{tac} = Macroeconomic data surprises Z_t^0 = Dummies to account for the effects of global economic financial crisis on interest rate ϵ_t = Error term
- $\beta_0, \beta_g, \theta, \delta, \alpha,$ and ϕ are the coefficients to be estimated.

Variance Equation

$$\text{Log } \delta_t^2 = \mu_0 + \sum_{j=1}^s \mu_j \text{log } \delta_{t-j}^2 + \sum_{v=1}^y (\lambda_v \frac{|E_{t-v}|}{\delta_{t-v}} + \phi_v \frac{E_{t-v}}{\delta_{t-v}}) + \alpha_{C_t^m} \dots\dots\dots(3.2)$$

Where:

- $\text{Log } \delta$ = lag(s) of logged conditional variance terms to measure the GARCH effects
- $\frac{|E_{t-v}|}{\delta_{t-v}}$ = lag(s) of the absolute value of standard residuals to measure the ARCH effects
- $\frac{E_{t-v}}{\delta_{t-v}}$ = control for Asymmetric responses to shocks
- C_t^m = Communication signals
- μ, μ, λ_v and α are parameters to be estimated

4. Results and Discussions

To estimate the EGARCH the study carry out two pre-tests: normality test and unit root test. This is to avoid misleading results, because it is established in the literature that financial assets are prone to unit root and non-normal distribution with time varying second moments.

Test of Normality

Empirical studies have confirmed the EGARCH which was originally developed by Nelson (1991) to be the most suited technique for modeling financial time series, which tend to exhibit nonnormal distribution with time-varying second moments. As a result, this section examines the distribution of the interbank rates.

Table1 Descriptive Statistics of the Interbank Rates

	CALL_RATE	7 DAYS	30 DAYS	60 DAYS	90 DAYS	180 DAYS	360 DAYS
Mean	10.69875	4.295796	4.128915	0.801500	0.259000	0.475000	0.588500
Median	11.32000	0.100000	0.000000	0.000000	0.000000	0.000000	0.000000
Maximum	41.50000	20.00000	15.25000	16.25000	10.00000	19.00000	19.00000

Minimum	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Std. Dev.	7.704197	6.329279	6.185046	3.216841	1.570041	2.985090	3.135626
Skewness	0.567840	0.906451	0.862176	3.955716	6.080114	6.084870	5.403875
Kurtosis	4.991421	3.070902	4.805663	17.33538	37.98774	38.02564	31.16436
Jarque-Bera	17.51842	13.83280	14.66611	893.6466	4573.377	4582.994	3033.462
Probability	0.000157	0.000991	0.000654	0.000000	0.000000	0.000000	0.000000
Sum	855.9000	343.6637	330.3132	64.12000	20.72000	38.00000	47.08000
Sum Sq. Dev.	4689.017	3164.722	3022.129	817.4972	194.7374	703.9500	776.7398
Observations	2000	900	900	900	900	900	900

Source: E-views Output, 2021

The results in this table shows the presence of skewness and leptokurtosis in the data. The interbank rates are all positively skewed .However, the empirical estimates of the kurtosis of the market rates

Unit Root Test

At all maturity spectrums show that the market rates are characterized by leptokurtosis. This is evident, because their kurtoses exceed 3, the kurtosis of a normal distribution. Therefore, the presence of skewness and kurtosis in the data indicate that the interbank rates are not normally distributed. The Jarque-Bera test is in accord with this finding, because it also rejects the null hypothesis of normal distribution even at 1 %. This suggests that the EGARCH technique is the most appropriate for this study, given its ability to capture these thereby producing efficient estimates.

The (ADF) and (PP) tests of stationarity is to determine the order of integration of the variables. The results in table 2 indicate that the call rate, 7days rate, 30days rate, 60days rate, 90days rate, 180days rate and 365days rate are integrated of order zero (i.e. I (0)). But MPR, LR, CRR and INF are found to be integrated of order one (i.e. I (1)). These findings are true for both ADF and PP tests.

Table 2 Unit Root Test Result

Variable	Levels		First Difference		Comment
	ADF	PP	ADF	PP	
Call Rate	-6.50635	-46.50635	-6.43235	-21.41477	I(0)
7Days Rate	-9.865326	-26.59819	-27.47759	-230.7038	I(0)
30Days Rate	-29.94153	-29.94154	-29.72224	-892.9447	I(0)
60Days Rate	-9.423901	-24.85158	-28.60986	-221.0881	I(0)
90Days Rate	-25.25929	-25.3662	-31.59427	-136.373	I(0)
180Days Rate	-0.682366	-4.682366	-5.622597	-4.622597	I(0)

360Days Rate	-27.26394	-44.59751	-37.93798	-38.33072	I(0)
MPR	-1.219489	-4.219489	-47.38687	-47.38687	I(1)
LR	-2.454423	-2.517286	-43.21458	-49.59656	I(1)
CRR	-0.898177	-0.898177	-47.38574	-47.38574	I(1)
INF	-21.05086	-15.46069	-47.36032	-560.0081	I(1)

Source: E-views Output, 2021

4.2.4 EGARCH Model Result

Table 3 EGARCH Estimation: Conditional Mean Equation

	C	R(-1)	D(mpr)	D(lr)	D(crrr)	D(inflation)
Call rate	0.769848 (0.154032) [0.0000]	1.346511 (21.08638) [0.0000]	0.009655 (0.425098) [0.0000]	-0.265587 (-0.181517) [0.0000]	0.058491 (12.11863) [0.0000]	0.000549 (1.022129) [0.3067]
7days rate	-2.306483 (-476.9658) [0.0000]	1.988584 (10.75341) [0.0000]	0.725537 (2.940645) [0.0000]	-7.394175 (4.536517) [0.0000]	0.004621 (-4.148673) [0.0000]	0.059929 (-30.12268) [0.0000]
30days rate	1.132.835 (-26.39465) [0.0000]	0.516169 (1.470100) [0.1415]	1.905964 (20.51193) [0.0000]	-3.6.91556 (25.86555) [0.0000]	0.162177 (26.77810) [0.0000]	-0.000863 (-1.105333) [0.2690]
60days rate	-2.274178 (5.757417) [0.0000]	1.613613 (16.25433) [0.0000]	0.523646 (5.593037) [0.0000]	-7.920632 (-5116.092) [0.0000]	-0.154785 (3.115876) [0.0000]	-0.009746 (-8.897923) [0.0000]
90days rate	-5.274598 (17.73624) [0.0000]	1.384722 (17.83671) [0.0000]	0.092186 (31.78786) [0.0000]	-1.803834 (-18.20651) [0.0000]	0.013285 (87.02446) [0.0000]	-0.013945 (-10.13487) [0.0000]
180days rate	16.64951 (-10.81456) [0.0000]	2.307276 (12.33353) [0.0000]	0.155843 (92.01613) [0.0000]	-0.489790 (59.50191) [0.0000]	0.001222 (29.17777) [0.0000]	0.000150 (-20.03962) [0.0000]
360days rate	2.677338 (-13.75440) [0.0000]	2.923651 (11.31130) [0.0000]	0.078963 (48.71136) [0.0000]	-0.851992 (13.28410) [0.0000]	0.008344 (98,.28015) [0.0000]	6.80E-05 (-74.75041) [0.0000]

Source:
E-views
Output,
2021

Note:
The
italicize d
values in
parenth
eses are
the
z-
statistic
and
probabil

ity values * (**) indicate s significa
nce at 5%
(10%)

This section

estimates and reports the EGARCH model of equations (5) and (6) previously provided in chapter three, after determining the distribution and order of integration of the variables. EGARCH (1, 1), (3, 3), (2, 2), (3, 3), (2, 2), and (1, 1) were determined to be appropriate for call rate, 7days rate, 30days rate, 60days rate, 90days rate, 180days rate, and 365days rate, respectively. These are picked based on the model selection criteria that have been set. The ARCH-LM Diagnostic Robustness Test was used by Dimitrios and Stephen (2007) to further determine the models' suitability. From table 3 the results indicate that there are no extra ARCH effects; hence the models are correctly specified. The estimates of the results are reported in table 3 and 4 for brevity, only the communication signal parameter is reported in the conditional variance equation.

Table 4 : EGARCH Estimates (Conditional Variance Equation)

	Call rate	7days rate	30days rate	60days rate	90days rate	180days rate	360days rate
D(mpc dummy)	-0.126311 <i>(1.661178)</i> [0.0000]	-0.922251 <i>(1.558066)</i> [0.0000]	-0.565465 <i>(0.370580)</i> [0.0007]	-0.039193 <i>(-0.058756)</i> [0.00001]	-1.001854 <i>(1.373263)</i> [0.0000]	-0.828566 <i>(1.596626)</i> [0.0003]	-0.088178 <i>(-0.037664)</i> [0.0000]

Source: E-views Output, 2021

*Note: The italicized values in parentheses are the z-statistic and probability values respectively. * (**) indicates significance at 5%.*

The coefficients on communication signals are statistically significant and correctly signed across the entire spectrum of market rates. The estimations are all negative, as indicated in column Table 4. This shows that the CBN's activities are trustworthy since their signals help to reduce rate volatility. This means that the CBN's communication signals not only impact but actually drive interbank rates in the desired direction. This finding is in line with earlier research suggesting that Central Bank communication has a significant impact including Mariscal and Howells (2007), Smales (2011) and Sanusi (2011 a and 2011b).

Although, the focus of this study is on the effects of communication on interest rates, other effects are considered. First, the effect of monetary policy decisions of the CBN; from Table 3, the coefficients on monetary policy rate (MPR) is significant only on the 60days rate, 90days rate and 180days rate and the signs are positive as expected. This implies that CBN should always raise the MPR to curb inflationary pressure. For example, a 1% increase in the MPR leads to 0.52%, 0.9% and 0.15% rise in 60days rate, 90days rate and 180days rate respectively. The rise in the market rates will in turn increase the cost of borrowing by investors and consumers for investment and consumption purposes respectively. Overall, spending will fall and inflationary pressure will be curtailed. Base on the results, however, the MPR constitutes a greater source of variation of the interbank rates relative to the cash reserve requirement (CRR) and the liquidity ratio (LR) (see Table 3). But contrasting the MPR with communication signals, the result shows strong evidence that CBN's signals are highly statistically significant than the MPR. This basic fact suggests to the

CBN to always improve the efficiency of monetary policy by communicating to signal how the future MPR and economic fundamentals will evolve. Second, the effect of macroeconomic news as measured by inflation (INF) is considered. On the basis of empirical result in Table 3, the releases of macroeconomic data appear to be insignificant on the interbank rates. This finding is plausible, since the money market believes the information about the economic fundamentals that the CBN provides. This implies that the market used to be informed before time.

Therefore, CBN's communication does not only reveal the future path of monetary policy decisions, but also carry relevant information which assists the market. Accordingly, it enhances market predictability, reduces uncertainty and volatility and thereby improves the monetary policy outcome.

5. Conclusion and Recommendations

The empirical analysis presented in the previous chapter allows us to draw some conclusions about each of the research questions raised at the beginning of this study. First, on the question of whether the Central Bank of Nigeria is credible, on the basis of the evidence that its communications contain signal that enhance money market's predictability of future monetary policy actions, we can conclude the CBN is credible. In addition, the EGARCH model indicated that CBN's communication constitute an effective tool for reducing the volatility of interest rates. In comparison, however, the monetary policy decisions of the CBN explained the variations of interest rates only to a small degree. In fact, the result indicated that in times of financial distress, CBN's communications remains the most effective and the best instrument for driving interest rates. These findings are in accord with the theories and the extant literatures reviewed in chapter two.

Arising from the empirical findings, this study recommends that CBN should rely more on communication framework in order to influence the interbank rates, this is particularly important in times of financial distress. And this follows that if the bank must increase the effectiveness and efficiency of monetary policy, the provision of forward looking information in the bank's publications should be the bank utmost priority. In addition, since CBNs signals are found to be significant via the communique, the study further recommends that the bank should improve on the information content of this channel to include two sets of information as it is the practice with the advanced Central Banks. First, the CBN should review and provide the public with its own view on the expectations surveys that the bank carries out. Second, the bank should as well review and provide its own view on the researches that guide the conduct of monetary policy in Nigeria. Adapting this strategy will make CBN to be more open and in turn enhance the effectiveness of managing agents' expectations, owing that these sets of information are integral part of the fundamental factors that influence the conduct of monetary policy implementation. For further research, it is recommended that studies on the effect of CBN communications on other rates should be carried out, given that its signals are found to be significant in explaining the variation in the interbank rates the rates which CBN targets to influence other rates in the economy. Though many open issues, particularly concerning the channels through which communication work, remain for future researchers.

References

- Amato, J. D., Morris, S. & Shin, H.S. (2003). *Communication and Monetary Policy*. Foundation Discussion paper 1405.
- Anderson, M., Dillen, H. and Sellin, P. (2012). Monetary Policy Signaling and Movements in the Swedish Term Structure of Interest Rates. BIS Working Paper12.
- Berger, H., De Haan, J. & Sturm, J.E. (2010). Does money matter in the ECB strategy? New evidence based on ECB communication. *International Journal of Economics and finance*. doi: 10.1002/ijfe.412.
- Blinder, A. and Wyplosz, C. (2004). Central Bank Talk: Committee Structure and Communication Policy. *Mimeo, December 2004*.
- Blinder, A., Goodhart, C., Hildebrand, P., Lipton, D. and Wyplosz, C. (2001), „How do central banks talk?“, *Geneva Report on the World Economy 3, ICMB*.
- Blinder, A.S. (2008). Making Monetary Policy by Committee. *Princeton University. CEPS Working Paper No. 167*
- Blinder, A.S., Ehrmann, M., Fratzscher, M., De Haan, J., and Jansen, G. (2008). „Central Bank Communication and monetary policy“ *BIS Working paper 898*
- Blinder, Alan S. (1998) *“Central Banking in Theory and Practice*. Cambridge MA: MIT Press.
- Dimitrios A. and Stephen H. G. (2007), *Applied Econometrics*. London: Palgrave Macmillan Publishers, pp. 248-276.
- Dow, S., Klaes, M., and Montagnoli, A. (2015). Monetary Policy by Signal, SUERF and Bank of Finland Joint Conference; *Open Market Operations and the Financial Market, Holsinei 22 – 23 September, 2015; Revised Paper submitted to Conference Proceedings, 26 October, 2005*
- Ehrmann, M., and Fratzscher, M. (2017). Communication by Central Bank Committee Members: Different Strategies, Same Effectiveness. *Journal of Money, Credit, and Banking, 39(23): 509-541*.
- Fay, F. and Gravelle, T. (2010). Has the Inclusion of Forward-Looking Statements in Monetary Policy Communications Made the Bank of Canada More Transparent? *Bank of Canada Discussion Paper 2010-15 November 2010*.
- Guthrie, G. and Wright, J. (2000). Open Market Operations. *Journal of Monetary Economics, 46(2): 489-516*.
- Jakob De Haan (2011). Does Central Bank communication really lead to better forecasts of policy decisions? New evidence based on a Taylor rule model for the ECB *Rev World Econ (2011) 147:41–58 DOI 10.1007/s10290-010-0076-4*
- Jansen, D., and De-Haan, J. (2012). "To What Extent Does ECB Communication Help in Predicting its Interest Rate Decision in the financial Market?" CESIFO Working Paper 2811.
- Kohn, Donald L., and Sack, B. P. (2013). *Central Bank Talk: Does it Matter and Why*. In: *Macroeconomics, Monetary Policy, and Financial Stability*, Ottawa: Bank of Canada, 175-206. .
- Makram El-Shagi and Alexander Jung (2015) Has the Publication of Minutes Helped Markets to Predict the Monetary Policy Decisions of the Bank of England's MPC? *JEL codes: C34, D78, E52, E58*

- Mariscal, I. B and Howells, .P. (2013). Central Bank Communication, Transparency and Interest Rate and Exchange rate Volatility: Evidence from the USA. *School of Economics University of the West of England*
- Mariscal, I. B and Howells, .P. (2013). Central Bank Communication, Transparency and Interest Rate and Exchange rate Volatility: Evidence from the USA. *School of Economics University of the West of England*.
- Middeldorp, M. and Rosenkranz, S.:(2011), “Central Bank communication and the crowding out of private information in an experimental asset market” *Federal Reserve Bank of New York Star Report 487*
- Middeldorp, M.(2011), “FOMC communication policy and the accuracy of Fed funds futures” *Federal Reserve Bank of New York Star Report 491*.
- Morris, S. and Shin, H.S. (2013). *Communication and Monetary Policy*. Foundation Discussion paper 1405 MPCminutes. <http://www.cenbank.org/documents/>
- Piazzesi M. (2005). Term Structure of Interest Rates and the Macro economy. *University of Chicago, CEPR & NBER. CEPR Summer Institute, July 28, 2005*
- Poole, W. (2005). Understanding the Term Structure of Interest Rates. *Federal Reserve Bank of St. Louis Review, September/October 2005,87(5): 589-95*.
- Rachel Reeves and Michael Sawicki (2015) Do financial markets react to Bank of England communication?” *JELclassification: E44, E52, E58, G14*
- Ranaldo, A. and E. Rossi. (2010). "The reaction of asset markets to Swiss National Bank communication," *Journal of International Money and Finance, vol. 29(3), pp. 486 503*.
- Refet S. G, rkaynaky Jonathan H. Wrightz (2010) Macroeconomics and the Term Structure *JEL Classification: C32, E43, E44, E58, G12*
- Rezessy, A. (2013). Estimating the Immediate Impact of Monetary Policy Shocks on the Exchange and other Assets Prices in Hungary. *Occasional Papers No. 38. MNB, 2013*
- Sanusi, A R. (2011a) Signalling Vs Cost-Of-Fund Effects Of Monetary Policy In Nigeria: Evidence From The Post-Banking Sector Consolidation Data. *Presented at the Annual Conference of the Faculty of Administration, Nasarawa State University, Keffi, Nasarawa State, Nigeria, Between 17-19th May, 2011*
- Sanusi, A R. (2011b) Signalling Effects of Monetary Policy in Nigeria: Evidence from the New Central Bank’s Communication Regime. *Presented at the 52nd Annual Conference of Nigerian Economic Society, Held at Covenant University, Ota, Ogun State, Nigeria between September 13-15, 2011*
- Smales, L. A. (2017). Examining the Effect of RBA Target Rate News on the Interest Rate Futures Market. *international Research Journal of Finance*
- Sturm, J.-E. and J. de Haan (2018). Does Central Bank communication really lead to better forecasts of policy decisions? new evidence based on a Taylor rule model for the ECB. *Review of World Economics (Weltwirtschaftliches Archiv) 147 (1), 41{58*.

