

## A Review of Monetary Policy Transmission Channels in Nigeria

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### INTRODUCTION

The understanding of transmission mechanism of monetary policy is very useful in the management of monetary policy [1]. It is a good basis for formulating consistent economic policy objectives and appropriately deploying policy instruments. It is not overstatement to note that the ultimate goal of economic policies is to attain and sustain high levels of human development within a stable macroeconomic environment and therefore low stable inflation, rapid economic growth and full employment. Monetary policy is best suited for the pursuit of price stability. It can however be used as a tool for output stabilization as long as the price stability objective is not severely compromised. A monetary policy shift tends, generally, to transmit a change for the future in the expected behaviour of macroeconomic variables from their initial position, alter in the process the behaviour of economic agents and, finally, create a new equilibrium position, hopefully, in the

direction expected by the central bank in the fulfilment of its objectives. In a developing or emerging economy, monetary policy shift is often designed in response or reaction to undesirable shocks in the monetary system and macro-economy in order to restore equilibrium and achieve a set of objectives [2].

For instance, in Nigeria in the fourth quarter of 2007, due to the challenges from autonomous private capital inflow resulting in the appreciation of the naira, the Monetary Policy Rate (MPR) was raised from 8 per cent to 9 per cent in October, probably aimed at a contraction of the system in order to choke off the likely excess liquidity and inflationary pressures of the undesired external shock. Such undesirable shocks generate effects which tend to challenge central banks as the shocks work contrary to their objectives and render monetary policy ineffective. Central banks, face the challenges of actually understanding the

process by which their policy actions impact the objectives of monetary policy. It would be fair to say that central banks do not always know, *ex ante*, with a high degree of precision (despite their use of macroeconomic forecasting models) what the exact effect of their policy action would be when such policy is put in place. What is often unclear is whether or not the policy would actually achieve the desired objective, i.e., the probable effectiveness of the monetary policy. More importantly, when an outcome is achieved, there is the fundamental issue of the transmission channel through which such an outcome is achieved. Consequently, there is continuing debate about the transmission mechanism of monetary policy, namely, the process by which a change in a monetary policy input affects the desired policy objective.

In recent times, interest rate changes have become generally accepted as the monetary policy instrument input and inflation as the monetary policy objective. For instance, the Monetary Policy Committee of the Bank of England has described the Monetary Policy Transmission Mechanism as "the process by which interest rate changes affect inflation". While the general acceptability of inflation as a monetary policy object appears not in doubt, given that monetary stability is a

fundamental functional objective of the monetary policy of central banks, the channel through which interest rate affects the economy and, hence, inflation is still very much up for debate. Accordingly, the subject of the optimum channel of the monetary policy transmission mechanism continues to generate much research. Arising from considerations of inflation as a monetary policy objective is the fundamental problem of how monetary policy input changes affect aggregate output and, hence, the real sector of the economy [3].

A presumption here is the relation between inflation and output gap or, more generally, excess aggregate demand. In other words, in what way or how does a change in monetary policy input affect output in the real sector of the economy? This question is of a critical importance for at least two reasons. First, there is the empirical argument as to whether or not the nominal interest rate can affect the real output. The second, a more fundamental issue in a developing or emerging market economy, is what form the transmission mechanism of a monetary policy takes when the central bank changes the interest rate in order to effect changes in aggregate output in the real economy to promote economic growth [4].

In Nigerian economy, this issue is of a great importance to the Central Bank of Nigeria (CBN) for two principal reasons. First, the CBN has a foundational policy objective to contribute to the development and growth of the Nigerian economy while pursuing a central bank's universal objective of maintaining monetary stability. Second, the real sector of Nigeria's economy appears far separated from the monetary and financial sector, sometimes manifesting an elusive characteristic in monetary policy management. For example, it has been observed that while the financial services sector has grown robustly, especially since the regime of economic liberalization, the real sector, particularly the manufacturing sub-sector, has not grown correspondingly. At best, the real sector typically lags behind the financial services sector. This is not to suggest support for the McKinnon-Shaw model of financial intermediation growth process which implies that the financial system leads the economy. Such a view is opposed to the "structuralist" thesis that as the economy grows the demand for

#### **REVIEW OF THE STRUCTURE OF NIGERIA'S MONETARY POLICY EXPERIENCES**

The Central Bank of Nigeria became actively involved in monetary policy in 1964 when it undertook "for the first time" a package of monetary policy initiatives to deal with the problems

financial intermediation grows as a result [5].

The concern of this paper is not to engage in such debate. Rather, it is that Nigerian real sector seems to be benignly delinked with the financial sector. This may be explained by the asymmetry problem in financial intermediation. It may also be due to the consequence of the generally held view about the under-development of the financial system in the economy. Whatever view is held, there is the need to establish, theoretically, the channel of monetary policy transmission mechanism in Nigerian economy. This would be done with a view to strengthening of monetary policy effectiveness in Nigeria [6].

The paper is organised as follows. Section 2 includes a review of the structure of Nigeria's monetary policy experiences. Review of related literature is presented in section 3, while challenges and prospects of monetary policy transmission mechanism in Nigeria is presented in section 4. Section 5 concludes the paper.

of inflationary pressures and a rundown of the country's external reserves [7]. It is interesting to observe that the monetary policy instruments of the Central Bank of Nigeria, even at

that time, were moral suasion, specifying a ceiling on the growth of commercial banks' loans and advances, and providing administrative/compositional variation in the commercial banks' liquid assets, as well as changes in the level of the Central Bank's Minimum Rediscount Rate (MRR)[8].

This historical snapshot, which is part of the analytical review of the structure of Nigeria's monetary experiences in this section, forms a coherent component of the initial conditions of our analysis of Nigeria's monetary policy transmission mechanism. It characterized the Central Bank of Nigeria's monetary policy from the regime preceding the epoch-making Federal Government's Structural Adjustment Programme (SAP) of 1986 to the Central Bank of Nigeria's radical Bank Consolidation regime. This structural review is decomposed into: (i) the pre-SAP regime, (ii) the post-SAP and deregulation era, and (iii) the bank consolidation regime [9].

#### **Pre-SAP Regime**

The structure of monetary policy in the period preceding the Structural Adjustment Programme (SAP) in Nigeria was essentially a stabilization policy regime during the nascent age of the CBN. A stronger policy posture was, however, taken during the Civil War period, 1967 - 1971 and in the

"oil affluent" era of 1973 - 1980, with a series of CBN and banking amendment decrees designed to strengthen CBN's operations. Relying on administrative fiat dictated more or less by the Federal Government, monetary policy during this era was largely used to support the fiscal policy operations of government [9].

Accordingly, the essential characteristic of monetary management during this era was monetary control whereby monetary variables, namely, the lending rates of commercial banks (deposit money banks), deposit rates, credit growth and allocation were administered by fiat, while the exchange rate was fixed and capital flows directly controlled. It was an era of administered prices in the monetary and financial system by the CBN operating largely as a department of Nigeria's Federal Ministry Finance. Such monetary control regime, which could be described as a regime of "financial repression" in the Nigerian monetary and financial system was, in fact, characterized by fiscal dominance. Though monetary policy instruments such as interest rate, liquidity ratios of banks, and credit allocation were used, they were largely controlled to support the fiscal operations of the government of the day. Interest rate levels were fixed most of the time, with ceilings on loan rates through the Central Bank's Minimum Rediscount

Rate (MRR) [10]. Credit allocation was in the form of directives in the sense that banks were directed to allocate specific proportions of credit to specified economic activities and sectors, with specified growth rates of bank credit. Interest rates were capped and credit allocated to preferred, presumably priority, sectors and sub-sectors of the economy. Target rates of the growth of credit and money supply were to be maintained as a rule. There were, accordingly, in this era, both monetary rule and monetary targets in the monetary policy process of the CBN. All the rules and targets were designed to ensure that monetary policy satisfied the fiscal operations of government and to contain inflationary pressures [11]. Consequently, inflationary pressures were to be contained through the complementary role of monetary to fiscal policy. An exchange control regime was, for the most of the period, in operation for the control of capital movement, especially of scarce foreign exchange resources [12].

#### **SAP and the Deregulation Era**

A Structural Adjustment Programme (SAP) was introduced in June 1986. It was an innovative policy structure intended to remove the distortions occasioned by the erstwhile regime of monetary control and, thereby, institute a market-driven regime. Monetary policy during this era experienced de-control and deregulation

of prices and incomes which were aimed at enhancing some variability in the use of monetary policy inputs, especially the interest rate and exchange rate variability. SAP was supported occasionally with stabilization securities in the money and financial markets and was strongly bolstered by the decontrol of the foreign exchange market. The ensuing flexibility in banking sector portfolio management of assets and liabilities, through interest rates, was presumed to provide a fulcrum for CBN's monetary policy programming within a market-oriented deregulated economy [13].

During this deregulation regime, there was a massive entry and high growth of banking and financial institutions, both in structure and in numbers, thereby enhancing choices in financial intermediation. The result was considerable financial deepening. This was propitious to the stimulation of savings and investment in the economy. However, towards the late 1980s and early 1990s, the financial institutions experienced serious distress and insolvency. The consequence was a high rate of exit of financial institutions, especially finance houses as well as commercial banks and mortgage institutions. Nonperforming loans, resulting from non-fulfilment of financial contracts, became a phenomenon of the financial system.

This posed some challenges to the CBN, both from the perspective of monetary policy and the management of the financial system to ensure soundness and efficiency in the administration of financial operations. The expected market-driven operations in the economy and financial services sector, embodied in the Structural Adjustment Programme and deregulation regimes were not successfully delivered. As a result, financial disintermediation and flight to quality institutions by financial services consumers became the characteristic behaviour of users of the financial services. It should be noted that the regime of deregulation of the economic and financial services nevertheless resulted in rapid structural changes incorporate governance of the financial institutions especially the banking institutions [14]. Public sector divestment in banking and other financial institutions encouraged private entrepreneurial management and ownership of financial capital in the erstwhile public enterprises. The financial liberalization in this regime encouraged, as it were, a private sector, market-driven economy in Nigeria both in financial services delivery and the non-financial real economy. Innovation in financial services was stimulated in products and processes, especially among the banking sub-sector institutions. These

developments seemed to have paved the way for a radical departure in banking operations which provided, so to say, an enabling environment for CBN's greater flexibility in its monetary policy operations. Thus, it could be argued that although the effects of the post-SAP and deregulation era had enormous diseconomies to the banking and financial services sector, by creating negative externalities to consumers of financial services, such as loss of deposit resources and significant loss of welfare, yet it provided some stimulant for a full-fledged radicalization of the sector by the CBN in its monetary policy and bank consolidation initiative [15].

#### **The Bank Consolidation Regime**

It appeared that by 2004, the banking sub-sector of Nigeria's financial services sector had matured to the point of being a global player. However, the fundamentals of the sector's operations needed a structural reform. The existence of many comparatively small- and medium-sized operating banking institutions was perceived as inadequate for the global banking competitive markets. The compartmentalized banking structure was no longer found adequate for global operations. As a result, the erstwhile structure had to give way to a new operational system, such as universal banking, e-banking, e-business, and e-

commerce which had become a fruitful outcome of the nascent information and communication technology (ICT) developments in the Nigerian economy. These elements of financial innovation were needed in the new regime to obtain economies of scale in the banking industry. The resulting mergers and acquisitions in the banking services sub-sector, primarily to satisfy the new, enhanced minimum capital requirement, were meant to pursue these economies of scale for greater profitability, efficiency and effectiveness in the banks' service delivery in a globalized economy to the advantage of the CBN's monetary policy programming and effectiveness. The liberalization of the monetary and financial markets which had taken root from the deregulation regime needed strengthening for the effective monetary policy operations of the CBN.

During the bank consolidation regime, the CBN seemed to require a strong money and financial market system for an effective monetary policy to promote growth of the economy, not just the monetary system, in an environment of a rapidly changing global financial structure. The conduct of monetary policy during this regime was characterized by the use of interest rate as the principal policy input, supported with Open Market Operations (OMOs), stabilization monetary

measures for liquidity optimization and exchange rate in the management of the securitized and collateralized finances. The Minimum Rediscount Rate (MRR), which had been the anchor for interest rate as a policy input, was replaced in December 2006 with the more market-based Monetary Policy Rate (MPR). A radical departure from the previous regimes in the conduct of monetary policy during the post-bank consolidation regime is embodied in the operation of the Monetary Policy Committee (MPC), which had been established by the Central Bank of Nigeria Act, 2007 and chaired by the Governor of the CBN. The MPC has the responsibility of setting its MPR and other monetary policy inputs after its periodic assessment of the country's macroeconomic situational report on monetary and economic conditions over its operational period in relation to the immediate preceding period. In 2007, for example, the MPC met five times and took decisions on the level of the MPR, which was changed three times in the year. MPC's decisions are also made public after each meeting of the Committee. The variability of the MPR and, hence, of the interest rate structure is the hallmark of the conduct of monetary policy during the post-bank consolidation regime, which is characterized by a market-driven, liberalized economy.

Major additional regular monetary policy inputs remain credit supply and allocation of banks, liquidity ratio, and exchange rate which is determined at the foreign exchange market. The Open Market Operations (OMOs) of the CBN, which had become a veritable instrument of monetary policy since the early 1990s, became a more regular instrument for the liquidity management of the deposit banking institutions, especially when excess liquidity of the banking system is reported. In this regard, CBN's discount windows, as well as the re-purchase agreement, enable the CBN to influence the liquidity management of the institutions in the financial markets, through the deposit money banks. The interest rates at the discount windows and for the repurchase facilities provide some mechanism through which the interest rate structure in the financial markets is influenced by the CBN both as a result of its own innovation and in response to the development of liquidity management. For example, direct purchase by the CBN often occurs when there is need to stabilize liquidity in the financial system. This is especially so when the excess liquidity effect of government's fiscal operations occurs, such as when there is disbursement of funds to the three tiers of government, or when there is surplus revenue-sharing

to governments from excess crude oil revenue. In each of such cases, there is the tendency for the financial system to be awash with excess liquidity, thereby prompting the CBN to carry out "mopping up" operations in the financial system, using stabilization securities. Such monetary challenges, notwithstanding, financial deepening and intermediation efficiency improved during this era. For example, M2/GDP rose to 38.1% in 2008, from 22.0% in 2004.

Very significant innovations have been put in place, especially during this post-bank consolidation era in the area of monetary policy framework. In 2006, for example, CBN's "standing facilities" was introduced to stabilize money market rates and optimize the liquidity management of financial market operators. The "facilities" involve the deposit and lending rates which provide the rates corridor within which players dealing with securities in the financial markets are expected to operate. A very singular monetary policy innovation during this era was the replacement of the Minimum Rediscount Rate (MRR) with the Monetary Policy Rate (MPR). MPR became operational in December, 2006 as the nominal anchor for the structure of interest rates in the financial markets.

Monetary targeting has become an anchor of the monetary policy framework since the deregulation era, though it was not firmly established until the post-bank consolidation regime from 2006. The monetary targeting framework hardly worked as the targets were never attained. Besides, in 2009, there was evidence that some deposit money banks' loan portfolios suffered non-performance characteristics, arising largely from inadequate supervision by the monetary authorities and information asymmetry in the banks' financial intermediation process in adverse selection and moral hazard effects. Non-fulfilment of loan contracts by large-scale borrowers became a major challenge to some of the banking institutions which these are also the principal players as lenders in the credit markets.

The phenomenon of non-performing loans among nine deposit money banks posed a big challenge to the CBN in 2009 in its pursuit of a stable monetary policy and a stable financial system. The CBN has nevertheless been able to contain the challenge, through its "bailout" initiative. For instance, in an interview with the *Financial Times of London* [3], the CBN Governor was quoted to have expressed his resolution to continue the fight to ensure that the Nigerian financial services sector, particularly the banking subsector, would be adequately strengthened for greater efficiency and effectiveness within the private sector, without necessarily resorting to nationalization of the financial institutions. The bail-out initiative of 2009 is essentially a credit option.

## LITERATURE REVIEW

### Theories of Monetary Transmission

One way of posing the fundamental question associated with understanding the monetary transmission mechanism is to ask how seemingly trivial changes in the supply of an outside asset can create large shifts in the gross quantity of assets that are in zero net supply. How is it that small movements in the monetary base (or non-borrowed reserves) translate into large changes in demand deposits, loans, bonds, and other securities, thereby

affecting aggregate investment and output?

The various answers to this question can be understood within the framework originally proposed by Brainard and Tobin (1963). Their paradigm emphasizes the effects of monetary policy on investor portfolios, and is easy to present using the insights from Fama's (1980) seminal paper on the relationship between financial intermediation and central banks.

Fama's view of financial intermediaries is the limit of the current type of financial innovation, because it involves the virtual elimination of banks as depositary institutions. The setup focuses on an investor's portfolio problem in which an individual must choose which assets to hold given the level of real wealth.

At most abstract level, financial intermediaries exist to carry out two functions. First, they execute instructions to change portfolio weights. That is, following a change in one or all of the stochastic processes driving consumption, wealth or returns, the intermediary will adjust investors' portfolios so that they continue to maximize utility. In addition, if one investor wishes to transfer some wealth to another for some reason, the intermediary will affect the transaction.

What is monetary policy in this stylized setup? For policy to even exist, some government authority, such as central bank, must be the monopoly supplier of a nominally denominated asset that is imperfectly substitutable with all other assets. This can be called "outside money". In the current environment, it is the monetary base. There is a substantial literature on how the demand for outside money arises endogenously in the context of the type of environment just described. But in addition, as Fama emphasizes,

there may be legal requirements that force agents to use this particular asset for certain transactions. Reserve requirements and the use of reserve for certain types of bank clearings are examples.

Within this stylized setup, a policy action is a change in the nominal supply of outside money. For such a change to have any effects at all, (1) the central bank controls the supply of an asset that is both in demand and for which there is no perfect substitute, and (2) prices must fail to adjust fully and instantaneously. Otherwise, a change in the nominal quantity of outside money cannot have any impact on the real interest rate, and will have no real effect. But assuming that the policymaker can change the real return on the asset that is monopolistically supplied, investors' portfolio weights must adjust in response to a policy actions.

Second, even though there need be no banks as we know them, there will surely be intermediaries that perform the services of making small business loans. The agency costs and monitoring problems associated with this type of debt will still exist, and specialists in evaluation will emerge. While they will have such loans as assets, they most likely will not have bank deposits as liabilities. Such entities will be brokers,

and the loans will be bundled and securitized.

With this background, sketching of two major views of monetary transmission mechanism is now possible.

### **The Money View**

The first theory, commonly labelled the money view, is based on the notion that reductions in the quantity of outside money raise real rates of return. This, in turn, reduces investment because fewer profitable projects are available at higher required rates of return. This is a movement along a fixed marginal efficiency of investment schedule. The less substitutable outside money is for other assets, the larger the interest rate charges.

There is no real need to discuss banks in this context. In fact, there is no reason to distinguish any of the other assets in investors' portfolios. In terms of the simple portfolio model, the money view implies that the shift in the weights for all of the assets excluding outside money are equal.

An important implication of this traditional model of the transmission mechanism involves the incidence of the investment decline. Since there are no externalities or market imperfections, it is only the least socially productive projects that go unfunded. The capital stock is marginally lower. But, given that a decline

is going to occur, the allocation of the decline across sectors is socially efficient.

This theory actually points to a measure of money that is rarely studied. Most empirical studies of monetary policy transmission focus on M2, but the logic of the portfolio view suggests that the monetary base is more appropriate. It is also worth pointing out that researchers have found it extremely difficult to measure economically significant responses of either fixed or inventory investment to changes in interest rates that are plausibly the result of policy shifts. In fact, most of the evidence that is interpreted as supporting the money view is actually evidence that fails to support the lending view.

### **The Lending View: Balance Sheet Effects**

The second theory of monetary transmission mechanism is the lending view. It has two parts, one that does not require introduction of assets such as bank loans, and the one that does. The first is sometimes referred to as the broad lending channel, or financial accelerator, and emphasizes the impact of policy changes on the balance sheets of borrowers. It bears substantial similarity to the mechanism operating in the money view, because it involves the impact of changes in the real interest rate of investment.

According to this view, there are credit market imperfections that make the calculation of the marginal efficiency of investment schedule more complex. Due to information asymmetries and moral hazard problems, as well as bankruptcy laws, the state of a firm's balance sheet has implications for its ability to obtain external finance. Policy-induced increases in interest-rates (which are both real and nominal) can cause a deterioration in the firm's net worth, by both reducing expected future sales and increasing the real value of nominally denominated debt. With lower net worth, the firm is less creditworthy because it has an increased incentive to misrepresent the riskiness of potential projects. As a result, potential lenders will increase the risk premium they require when making a loan. The asymmetry information makes internal finance of new investment projects cheaper than external finance.

The balance sheet imply that the shape of the marginal efficiency of the investment curve is itself a function of the debt-equity ratio in the economy and can be affected by monetary policy. In terms of a simple textbook analysis, policy moves both the IS and the LM curves. For a given change in the rate of return on outside money (which may be the riskless rate), a lender is less willing to finance a given investment the more debt a potential borrower has. This points to two clear

distinctions between the money and the lending views. The latter stresses both the distributional impact of monetary policy and explains how seemingly small changes in interest rates can have a large impact on investment.

The second mechanism of lending channel can be described by dividing the other assets in investors' portfolios into at least three categories: outside money, loans, and all the others. Next, assume that there are firms for which loans are the only source of external funds, that is, some firms cannot issue securities. Depending on the solution to the portfolio allocation problem, a policy action may directly change both the interest rate and the quantity of loans. It is not necessary to have a specific institutional framework in mind to understand this. Instead, it occurs whenever loans and outside money are compliments in investor portfolio weight on loans is a negative function of the return on outside money for given means and covariances of other asset returns.

The argument has two clear parts. First, there are borrowers who cannot finance new projects except through loans, and second, policy changes have a direct effect on loan supply. Consequently, the most important impact of a policy innovation is cross-sectional, as it affects

the quantity of loans to loan-dependent borrowers.

Most of the literature on the lending view focuses on the implications of this mechanism in a world in which banks are the only source of loans and whose liabilities are largely reservable deposits. In this case, a reduction in the quantity of reserves forces a reduction in the level of

deposits, which must be matched by a fall in loans. The resulting change in the interest rate on outside money will depend on access to close bank deposit substitutes. But the contraction in the bank balance sheets reduces the level of loans. Lower levels of bank loans will only have an impact on the real economy insofar as there are firms without an alternative source of investment funds.

### MONETARY POLICY TRANSMISSION CHANNELS

Basically, the channel of monetary policy is concerned with the changes associated with the alteration of money supply and the effects on prices of goods and services, output of sectors and employment. Positive changes in aggregate demand in the country do reposition production level, employment and wages which in turn reflect on prices. The monitoring of the extent of policy transmission is imperative so as to take adequate measures in avoiding adverse effects which is inimical to the growth and development of the economy. Given the Keynesian channel of monetary transmission and that of neoclassical, in this context, it is necessary to examine the channels of transmission mechanism of key instruments such as interest rate, credit, exchange rate, asset prices and inflation expectation

#### Interest Rate Channel

The Monetary Policy Rate (MPR) is the official interest rate in use in Nigeria by the apex bank in 2006. Prior to this period, the Minimum Rediscount Rate (MRR) was in use. The country witnessed instability on the official interest rate due to changes over the years. However, in the year 2000 there was a relative volatility of the official interest rate, but in 2004 and 2005 there was a relative stability in the interest rate. Given this situation, the commercial banks experienced instability in their lending rate between 1999 Q1 to 2007 Q4 and it was more volatile than the apex bank's interest rate. The volatility was highly conspicuous in 1999, 2001, 2003, 2004 and 2005. However, prime lending rate has witnessed instability since after consolidation of 2005, post-consolidation period of 2007 and this period [13]. Firms and investors react in a way given the instability in

lending rate. High interest rate raises the cost of investment given that interest rate is inversely related to investment. [5], notes that economic agents who are confronted with higher real cost of borrowing resulting from contractionary monetary policy usually cut down borrowing and then consumption which in turn reduces aggregate demand, output and employment.

On the other hand, an expansionary monetary policy has the effect of encouraging investment, income generation, output and employment of resources. So, Nigeria has witnessed low investment over the years resulting from volatility of both apex and commercial banks interest rates. The interest rate channel is supported by empirical studies. For instance, recent studies by Nwosa and Saibu (2012) asserted that interest rate channel of transmission is very strong in impacting on the productive sector of the Nigerian economy. Ishioro (2013) added that negative monetary shocks pose a constraint to the banking system's capability to dispose deposits, and consequently, demand for bonds rise while demand for money declines. So, non-fully adjustability of price leads to a fall in real money balances causing interest rates to rise and increasing the cost of capital. Fall in investment lowers both aggregate demand and output.

### **Credit Channel**

The credit channel is not seen as departure from the traditional interest rate channel but an enhancement of it [7]. The credit channel explains the impact of monetary policy via the effects of informational asymmetry between the lender and the borrower [11]. The credit view proposes that as a result of these informational asymmetries, two channels of monetary transmission arise: those that operate through the effects on bank lending as well those that affect the firms' and households balance sheets. The bank lending channel is based on the assumption that financial intermediaries are best suited to solve problems of informational asymmetry in credit markets while the balance sheet channel is based on the effects of monetary policy on the net worth of firms and hence their collateral [8]. The bank lending channel operates through the quantity of loans supplied by banks to households [7]. Expansionary monetary policy increases liquidity in the banking system enabling bank to supply more loans for investment and consumer spending resulting in increased aggregate demand and consequently economic activity. The bank lending channel is likely to be more effective in an economy where there are many bank

dependent firms with no access to capital markets.

On the other hand, existence of informational asymmetries between borrowers and lenders makes the role played by commercial banks as financial intermediaries to be important and thus comes in the balance sheet channel [5]. Existence of asymmetric information gives rise to moral hazard and adverse selection. As [5, 8, 9 and 12] emphasize that banks have a comparative advantage in assessing the balance sheets of borrowers and hence help in mitigating adverse selection as well as moral hazard. Under the balance sheet channel, there are several ways through which monetary policy affects the balance sheets of economic agents and hence the occurrence of moral hazard and adverse selection. Specifically, expansionary monetary policy enhances net worth of firms through increase in stock prices, reduction in the interest cost as well as increased sales. Enhancement in the net worth reduces the possibility of moral hazard and adverse selection thereby improving chances of these economic agents to access loans. Easier access to loans increases borrowing leading to increased consumer spending and investment, and consequently economic activity. It is important to emphasize here that all the other channels operate mostly through the credit channel.

### **The exchange rate channel**

Interest rates influence the exchange rate, which can have a notable effect on economic activity and inflation in a small open economy such as Nigeria. Typically this channel is stronger for sectors that are export-oriented or exposed to competition from imported goods and services. The exchange rate also has a direct effect on inflation.

A reduction in the cash rate lowers interest rates in Nigeria relative to those in the rest of the world. This reduces the returns on Nigerian assets (relative to foreign assets), which can result in lower demand for dollars as investors shift their funds into foreign assets. As a result, a reduction in the cash rate should be associated with a depreciation in the exchange rate. A depreciation in the exchange rate increases the competitiveness of domestic producers in foreign markets by reducing the prices of their goods and services compared with foreign competitors. This can lead to a rise in export volumes. A depreciation in the exchange rate can also flow through to higher demand for domestically produced goods and services as a substitute away from more expensive imports. This can lead to lower import volumes. As a result, lower interest rates should be associated with an increase in export volumes and a reduction in import volumes (or higher net exports).

A depreciation in the exchange rate has a direct effect on inflation through higher import prices. For example, a depreciation of the Nigerian naira typically raises the price of imported consumer goods, such as cars, computers and TVs. It can also indirectly increase inflation as it may allow domestic firms that produce similar items to increase their margins. An increase in import prices also raises the cost of imported inputs, such as imported capital and intermediate goods, used in production.

Depending on how much competition there is in different sectors, businesses may pass on these higher costs to retail prices, which can indirectly feed through to higher inflation. As a result, a reduction in the cash rate should be associated with higher imported inflation. One set of empirical estimates suggests that the effect of interest rates on the exchange rate is relatively small. An unexpected 25 basis point decrease in the cash rate is estimated to lead to a  $\frac{1}{4}$  to  $\frac{1}{2}$  per cent depreciation of the exchange rate.

There is also evidence that changes in the exchange rate affect exports and imports. Estimates suggest that a 10 per cent depreciation lifts export volumes by 3 per cent while reducing import volumes by 4 per cent within two years. The resulting increase in net exports leads to higher economic activity. With

regard to the direct effect of the exchange rate on inflation, estimates suggest that a depreciation of the exchange rate leads to a large and immediate increase in import prices.

### **Asset price channel**

Asset price channels are highlighted by Tobin's (1969)  $q$ -theory of investment and Ando and Modigliani's (1963) life-cycle theory of consumption. Tobin's  $q$  measures the ratio of the stock market value of a firm to the replacement cost of the physical capital that is owned by that firm. All else being equal, a policy-induced increase in the short-term nominal interest rate makes debt instruments more attractive than equities in the eyes of investors; hence, following a monetary tightening, equilibrium across securities markets must be reestablished in part through a fall in equity prices. Facing a lower value of  $q$ , each firm must issue more new shares of stock in order to finance any new investment project; in this sense, investment becomes more costly for the firm. In the aggregate across all firms, therefore, investment projects that were only marginally profitable before the monetary tightening go unfunded after the fall in  $q$ , leading output and employment to decline as well. Meanwhile, Ando and Modigliani's life-cycle theory of consumption assigns a

role to wealth as well as income as key determinants of consumer spending. Hence, this theory also identifies a channel of monetary transmission: if stock prices fall after a monetary tightening, household financial wealth declines, leading to a fall in consumption, output, and employment.

### **The Expectations Channel**

Since the early years of modern macroeconomics, expectations have been acknowledged to influence the behaviour of economic agents. For example, Keynes (1936) in his General Theory comments "...the behaviour of each individual firm in deciding its daily output will be determined by its short-term expectations — expectations as to the cost of output on various possible scales and expectations as to the sale-proceeds of this output; though, in the case of additions to capital equipment and even of sales to distributors, these short-term expectations will largely depend on the long-term (or medium-term) expectations of other parties". Economists generally agree that expectations are important in influencing economic activity, but they differ on how these expectations are generated. Friedman and other monetarists, postulate adaptive expectations while the new classical school led by Lucas and the New Keynesian School argue for rational expectations.

Since economic agents are forward looking and rational, the expectation channel is in effect fundamental to the working of all channels of monetary policy transmission. Empirically, this channel is mainly operational in developed economies with well-functioning and deep financial markets [7]. For example, if economic agents expect future changes in the policy rate, this can immediately affect medium and long-term interest rates.

Further, monetary policy can be used to influence expectations of future inflation and thus influence price developments. Inflation expectations matter in two important areas. First, they influence the level of the real interest rate and thus determine the impact of any specific nominal interest rate. Second, they influence price and money wage-setting behaviour and feed through into actual inflation in subsequent periods. Similarly, changes in the monetary policy stance can influence expectations about the future course of real economic activities by affecting inflationary expectations and the ex-ante real interest rate and guiding the future course of economic activities.

### **The saving and investment channel**

Interest rates influence economic activity by changing the incentives for households and businesses to save rather than consume or invest:

A reduction in interest rates reduces the incentives for households to save and can encourage them to borrow. Because of this, there are greater incentives for households to spend now rather than later. In particular, it can stimulate spending on durable goods, such as cars and household appliances, and housing. As a result, lower interest rates should be associated with higher household consumption and housing investment.

Similarly, lower interest rates encourage businesses to borrow and increase their spending on investment (in capital assets like new equipment or buildings). As interest rates fall, the cost of borrowing declines, leading to higher expected returns on investment projects. This can help to justify going ahead with these projects. Overall, lower interest rates

should be associated with an increase in business investment. In modern macroeconomic textbooks this channel is known as the 'inter-temporal substitution' channel, as households and businesses substitute between spending now and in the future. It is a key channel of monetary transmission in many modern macroeconomic models. Despite this, there is mixed evidence as to whether a strong relationship between lower interest rates and higher consumption growth actually exists. Lawson and Rees (2008) find that housing investment and business investment in machinery and equipment are actually the most sensitive components of GDP expenditure to changes in monetary policy. But this research does not provide specific evidence for any particular channel of monetary transmission.

## **CHALLENGES AND PROSPECTS OF MONETARY POLICY TRANSMISSION MECHANISM IN NIGERIA**

### **Challenges of Monetary Transmission Mechanism in Nigeria**

In Nigeria, the efficacy of monetary transmission mechanism is inhibited due to numerous factors, which the CBN has been trying to grapple with. These impediments are passing through the different channels of monetary transmissions like the interest, inflation, exchange rate and credit channels. Impediments arising from interest rates

are due to the large and continuing increase that exists between deposit and lending rates. According to [13], this can be influenced by factors such as, prudential and reserve requirements, market structure, inflation, as well as non-interest expense credit risk and profit expectations of banks. Another impediment to monetary policy transmission is through the lending channel. This comes through bank loans

which affects price of credit rather than quantity. In this case, monetary tightening decreases bank reserve and aggregate quantity of bank credits. This in turn leads to decrease in investment by bank-dependent borrowers and consumer spending. Other limiting factors of transmission mechanism can be through the balance sheet and asset channels. For the balance sheet channel, the failure of banks to adequately assess' credit occasioned by inadequate risk management know-how and shady accounting procedures are major impediments to transmission mechanism. While the impediments through assets prices operate through the underdeveloped state of the capital market. In Nigeria, the financial segment is occupied by banks, which account for a very large percentage of financial system assets, whereas the non-bank financial sub-sector such as the stock and mortgage market, insurance industry and the debt securities market are in their early years.

#### **Prospects of Monetary Policy Transmission Mechanism in Nigeria**

According to [10 and 11] channels of monetary policy transmission in Nigeria over the years which can be inferred as ineffective in sustaining growth and stability given the circumstances that impeded the achievement of this lofty goal and

frequent inflation. They therefore made the following recommendations for more effective monetary policy transmission channels:

- The Central Bank must persevere legally, morally and otherwise to make the economy a cashless one. The low patronage of banking services by many Nigerians is a stumbling block in effective control of money supply and has contributed to incessant inflation in the country. In other words, the confidence of banking services consumers must be restored to discourage keeping of huge amount of cash at home.
- Any form of disguise or indirect interference by the government has to be put to an end. The autonomy of the Central Bank of Nigeria has to be strictly adhered to by all arms of government. The effect of interference in the past played a significant ugly role in the pursuit of effective central banking in Nigeria in recent time.
- Instruments of monetary policy such as interest rate and exchange that are known to be effective in some sectors should be properly managed and monitored to enhance the economic activity of the sector (s). This implies

effective surveillance of instruments' roles with a view to change or adjust as the situation demands.

- It is imperative that concerted effort is made to put to an end insecurity of life and properties in the country. Bank robbery has

imposed severe constraints in effective banking operation in Nigeria.

- Strict compliance of guide line by financial institutions must be pursued in all ramifications to ensure positive results from all quarters.

### CONCLUSION

An understanding of the various channels through which monetary policies are transmitted to the Nigerian economy is very key to formulating appropriate monetary policy by the monetary authority. This theoretical paper has done detailed documentation of various monetary policy regimes Nigeria has gone through, reviewed some theories of

monetary transmission mechanism as well as the channels of monetary policy transmission mechanisms. This paper went further to present challenges facing Central Bank of Nigeria in implementation of monetary policies and also made recommendations that can help overcome those challenges.

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