# Transition to Full-Fledged Inflation Targeting: A Proposed Programme For Implementation By The Central Bank Of Nigeria

**CENTRAL BANK OF NIGERIA**

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## INTRODUCTION

In the last few decades, central bankers and other policy makers in the global economy have come to accept that ensuring price stability, defined as a low and stable inflation rate, should be the primary goal of monetary policy. This view is based largely on the strong evidence that high rates of inflation produce negative effects on economic performance.[1]Among other factors, high rates of inflation prevent rational decisions on the part of savers and investors and tend to divert scarce resources from productive uses. The emphasis on price stability as the main objective of monetary policy is, however, not inconsistent with attaining other goals of macroeconomic policy, such as maintaining a high level of employment and achieving sustainable economic growth. Rather, it is proven that in the long run, price stability promotes economic growth. Consequently, there is an emerging consensus that the best contribution a central bank can make to sustainable economic growth is to achieve and sustain price stability to support other objectives of macroeconomic policy.

Traditionally, central banks have applied various frameworks for conducting their monetary policy towards attaining specified policy goals. The framework for monetary policy outlines the objectives of policy, as well as the instruments and operating procedures for achieving the desired objectives. The most commonly applied monetary policy frameworks include the exchange rate peg, targeting of various types of monetary aggregates, and targeting of the inflation rate. The first two frameworks (the exchange rate peg and targeting of monetary aggregates) were actively applied by most central banks in the 1970s and 1980s.  However, from 1989 when New Zealand blazed the trail, many countries have shifted to the use of inflation targeting (IT) as a framework for monetary policy. The move to IT by the countries involved has been ascribed to several factors, such as increasing difficulties in applying the other frameworks, the strong determination to bring down inflation to

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[1] See, for instance, Mishkin (2007, 393-394) and Fischer (1993, 485-512).

acceptable levels, achieving improved credibility of monetary policy, as well as enhancing greater communication with the public in a concerted effort to curb inflationary tendencies.

Most of the countries that have, so far, adopted IT are developed countries and some emerging market economies. In Africa, only South Africa and Ghana have embraced the framework. Several other African countries, including Botswana, Mauritius, Uganda, Angola, Zambia, Kenya, Sudan and Tunisia are planning to introduce the framework in the medium-term (3-5 years). With regard to the developing countries, the minimum requirements for adopting an IT framework appear very stringent (Masson et. al., 1997),including the ability to conduct monetary policy independently and freedom from commitment to another nominal anchor. In addition to specified minimum requirements, there is need to build technical and administrative capacity for initiating and implementing the IT framework. Nigeria has indicated its intention to transit into IT as a framework for monetary policy[2]. Since the announcement for the transition was made, preparations have been intensified. For example, the Central Bank of Nigeria (CBN) organized an international seminar in January 2008 on the theme, "Monetary Policy and Inflation Targeting", with the aim of understanding, in particular, the theoretical and practical issues on the adoption of IT in Nigeria. In addition, in May 2008, the CBN Management set up a 28-member Inter-Departmental Committee on Inflation Targeting in Nigeria to identify what the CBN needed to do in transiting into an inflation targeting framework for monetary policy. The Committee has since submitted an interim report.[3] At the micro-level, several departments of the CBN have held seminars and retreats, with inflation targeting as their main theme.

The issues being addressed by these efforts are mainly to identify the problems that could constrain the smooth take-off of IT in Nigeria and proffer relevant solutions on how the CBN can successively transit from its current monetary targeting framework into one of inflation targeting. This paper attempts to

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[2] In 2004,the Monetary Policy Committee( MPC) had considered a document prepared by the Research Department on "The Case For and Against IT in Nigeria".Thereafter,an announcement was made by the CBN in 2007 to the effect that the shift to IT would take place in January, 2009. However, this was overtaken by subsequent events .The CBN has nonetheless intensified preparations for the adoption of the framework at a future date.
[3] The 28- member Committee comprises the following Departments: Banking Operations,BankingSupervision,DevelopmentFinance,ForeignOperations,InformationTechnology, Monetary Policy(Alternate Chairman and Secretariat of the Committee),Trade and Exchange,Research(Chairman),and Statistics.

provide an input into addressing these issues, especially as regards resolving the technical, administrative and practical problems for a transition to inflation targeting as a framework for monetary policy in Nigeria. Specifically, the main purpose of this paper is to outline proposals that would permit the CBN transit successfully to full-fledged inflation targeting (FFIT) for its monetary policy operations. Following this introduction(Section 1), the paper is organized as follows: Section 2examines the conceptual framework, focussing on the essential elements and modalities of different monetary policy frameworks. Section 3 contains an overview of the experiences of the present IT economies, including the origins, design and operations of their frameworks, and a general assessment of their performance. Section 4 reviews the evolution of monetary policy frameworks in Nigeria, concluding with an assessment of the prospects for a shift to IT. Section 5 contains a detailed analysis of the proposals for a transition to an IT framework in Nigeria with a specific focus on the technical aspects, roles of various institutions, as well as how to resolve critical policy decisions and address identified risks. Section 6 contains the summary,conclusion and policy recommendations which put forward an outline of identified activities for transition to a FFIT framework in Nigeria.

## 2.    CONCEPTUAL FRAMEWORK

The articulation of a comprehensive conceptual framework will shed some light on various types of monetary policy frameworks.  Such a conceptual framework should explain the fundamental differences between IT and the alternative monetary policy frameworks. It should also provide a better understanding of the basic requirements for introducing an IT framework, as well as the specification of implementation modalities. In what follows, we provide a background to the general concept and objectives of monetary policy, as well as the features, application and efficacy of different types of monetary policy frameworks.

### 2.1    Concept and Objectives of Monetary Policy

Monetary policy is best perceived as a component of macroeconomic policy which is government's reaction to how the nation's macroeconomy behaves.Other components of macroeconomic policy are fiscal policy, prices and incomes policy, as well as growth and development policy. Macroeconomic policy objectives include the following:

(i)     inducing a high rate of growth of real output;
(ii)    maintaining a low and stable rate of inflation;
(iii)   ensuring a low level of unemployment; and
(iv)    promoting balance of payments equilibrium.

Monetary policy is a key instrument for supporting the attainment of these macroeconomic policy objectives. It is applied by the monetary authorities througha package of measures and instruments to control the value, supply and cost of money. Mordi (2008, 3) puts it aptly,

> monetary policy is to ensure the achievement of a consistency between the expansion in domestic liquidity and government's macroeconomic objectives of price and exchange rate stability, higher output growth, full employment of resources, balance of payments equilibrium, promotion of a sound financial system and sustainable growth and development

The process of monetary policy design and implementation begins with the monetary authorities taking at least three critical decisions (Ojo, 2007, 3-5). First, the goal of monetary policy must be specified. It may  either be specified by the government or the central bank or jointly by both authorities in accordance with the nation's legal provisions. Second, the monetary

authorities must decide on what variable to apply to achieve the policy goal. This variable is called the nominal anchor or intermediate target. Third, after the determination of the policy goal and the most appropriate nominal anchor, the central bank must identify the instruments to use for the implementation of monetary policy. These three critical decisions will be further explained later as they form the essential elements of the various monetary policy frameworks reviewed.

The consensus in the literature is that of all the objectives of macroeconomic policy, ensuring low and stable inflation, that is, price stability, is the most desirable and feasible for monetary policy to undertake (Mishkin, 2007). If successful, it would minimise the huge costs of inflation to the economy and since, ultimately, inflation is caused largely by the behaviour of the money supply, the monetary authorities can apply the appropriate instruments to influence movements in the money supply and maintain inflation at an acceptable rate. In this way, monetary policy can support the economy because the evidence indicates that low and stable inflation rates promote economic growth. This underlies the claim that price stability should be the primary long-run goal of monetary policy. However, in the short-run, monetary policy should be concerned about output fluctuations and, thus, should aim at minimizing them, provided such short-run actions are not meant to pursue expansionary policies that may enhance output and employment, which could have adverse consequences for future inflation.

## 2.2    Types of Monetary Policy Frameworks

Many countries have conducted their monetary policies through the application of various frameworks which may be categorized into four types as follows:

### 2.2.1    The Exchange Rate Peg

One strategy for the conduct of monetary policy which was actively used in the 1970s and 1980s is the exchange rate peg whereby the exchange rate of a national currency is pegged or fixed to that of another currency belonging to a large low-inflation country. The expectation is that if the exchange rate is maintained strictly at a fixed value, domestic inflation in the pegging country should approach the inflation rate of the low-inflation country assuming that movements in the relative prices of goods and services in the domestic and foreign economies are reasonably stable (Bernanke et.al., 1999, 301-302). An extreme case of the exchange rate peg is the adoption of a 'currency board'

arrangement through which a fixed exchange rate to another currency is announced, while the country stands ready to trade its currency and the foreign currency in unlimited amounts. A pre-condition for the success of the'currency board' system as a framework for monetary policy is the maintenance of high levels of external resources in the foreign currency. A variant of the fixed exchange rate regime which is much stronger than the currency board is dollarization which is the adoption of a strong currency as a country's currency, a decision that leaves little room for a change in value of the currency. A mid-way exchange rate peg is the 'crawling peg' which allows the domestic currency to depreciate at a fixed pre-determined rate, thus permitting a higher domestic inflation rate than that of the foreign country.

The conduct of monetary policy, through an exchange rate peg, has some advantages, including the credibility it earns when there isfull commitment to it. Also, the framework is simple to operate which allows the public to be carried along in its application. These advantages have helped some countries to achieve relative stabilityduring periods of economic crisis. But, there are several disadvantages too. The use of an exchange rate peg reduces the ability of the domestic central bank to use monetary policy for other objectives, such as short-run domestic stabilization. When the use of the exchange rate pegis prolonged, domestic economic activity may deteriorate, owing to the reduced competitiveness of the country's exports in the international markets. Also, under a fixed exchange rate regime, shocks that affect the foreign country are quickly transmitted to the peggingcountry very often with adverse consequences. Speculative attacks on the anchor country's currency are also transmitted to the pegged currency, especially in a global economy of high capital mobility. The incidence of speculative attacks puts the pegging country in all sorts of uncertainty as there are no credible alternatives. For instance, anyattempt to defend the peg would result in heavy loss of international reserves, while a devaluation or float would induce higher inflation. Bernanke et al. (1999, 303) conclude from their study that "a more general shortcoming of exchange rate pegs is that they do not solve the problem of maintaining price stability. Rather, they shift the problem to another country (or to some international authority)".

### 2.2.2    Monetary Targeting

Along with exchange rate pegs, the targeting of monetary aggregates was a popular framework for the conduct of monetary policy in the 1970s and 1980s.

The general procedure is to determine an appropriate annual growth rate of a monetary aggregate, such as base money (BM), the narrow measure of money (M1), and the wider measures of money (M2, M3, etc). The central bank has the ultimate responsibility to achieve the specified target and usually has the discretion to adjust the monetary targets to reflect the changing economic conditions and perhaps, the need to achieve other objectives of monetary policy as well[4].

If the policy goal is the maintenance of price stability and the nominal anchor is a monetary aggregate, the central bank has toapply suitable policy instruments which may be classified into twogroups, direct and indirect instruments. Direct monetary control instruments are directives given by the central bank to control the quantity and price of money deposited with the deposit money banks (DMBs) and, indeed, other financial institutions, as well as credit by them. Examples of quantity controls are ceilings on the growth of bank lending or deposits, while limits on bank lending or deposit rates are examples of price (interest rate) controls. Direct controls are effective during temporary crises or at the start of their application. Direct controls are also useful in situations of undeveloped financial markets when there are no other options for monetary management. But, direct controls stifle competition in the financial markets and distort markets through the use of selective credit controls. Such controls also encourage disintermediation. They are not always effectively implemented after a prolonged use. As part of the process of financial liberalization, monetary authorities tend to move away from direct controls into the use of indirect monetary policy instruments which include the application of open market operations, reserve requirements, as well as discount window operations and repurchase agreements. Under indirect controls, the central bank sets the price or quantity of its own liabilities (base money) which will affect interest rates and the volume of money and credit in the financial markets. Indirect monetary controls tend to promote a liberalized environment for efficient allocation of savings and credit.

Monetary targeting has some advantages. First, information on the success or failure of the procedure is readily known as monetary developments are usually reported relatively quickly. This would send fairly accurate signals to the economy on the stance of monetary policy and the commitment of the monetary authorities to curb inflationary tendencies. This approach also helps

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[4] For details on how the intermediate and operating targets are determined under this framework, see Ojo (2000, Chapter 10), Ibeabuchi (2007, 6-11) and Mordi (2008, 12-13).

to fix inflation expectations and thereby engender and sustain low inflation. Second, the central bank is held accountable to ensure that its monetary policy would check inflation and prevent diversion into other undesirable short-run goals. But, monetary targeting involves some technicalities. Forexample, a powerful assumption in monetary targeting is that of a strong and predictable relationship between the targeted monetary aggregate and the policy goal variable, such as inflation or nominal GDP. Thus, the benefits of monetary targeting would be realized only if this relationship holds as assumed. If the relationship is not strong, monetary targeting would not be effective in achieving the goal of monetary policy, and it would not provide a good indication of the stance of monetary policy. Inflation expectations would not be fixed so as to produce a positive effect on inflation trends. The procedure would certainly not enhance communication with the public nor the transparency of monetary policy. Historically, the relationship between monetary growth and policy variables was taken to be predictable since velocity (ratio of nominal GDP to the money stock) was constant and predictable. But evidence shows that the relationship between money and the economy has been highly unstable largely because of the process of economic and financial liberalization, especially since the early 1980s. This is one of the reasons why many countries began the shift to IT.

### 2.2.3    Inflation Targeting (IT)
The IT framework for the conduct of monetary policy takes into consideration the fact that monetary policy takes time to have an impact on the economy. Thus, the central bank might base its policy changes on a forecast of inflation, and not the past rate. In practical terms, the central bank forecasts the future path of inflation, which is compared with a specified target. The difference between the forecast and the target inflation determines the required adjustment of the policy instruments. If inflation is expected to deviate from the target, this would signify the need for a change of policy – a tightening of policy if inflation is forecast above the target and relaxation of policy if inflation is expected to be below the target. In this framework, the forecast inflation rate acts as the nominal anchor, unlike in monetary targeting where the nominal anchor is a specific monetary aggregate. Specifically, the IT framework has the following essential elements[5]:

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[5] For full details, see Masson, Savastano and Sharma(1997), Schaecter, Stone and Zelmer (2000), Roger  and Stone (2005), and Freedman and Otker-Robe (2009).

(a)     Anpublic announcement of an explicit quantitative target for the rateof inflation some periods ahead;

(b)     An institutionalcommitment to price stability as the primary long-run goal of monetary policy and commitment to attain the target;

(c)     A forward-looking operating procedure in which the policy instruments are adjusted on the basis of assessments of all relevant  variables, including movements in monetary aggregates, to arrive at policy decisions;

(d)     increased transparency of the monetary policy framework through enhanced communication with the public and financial markets regarding the plans and objectives of the monetary authorities; and

(e)     Increased accountability of the central bank in achieving the monetary policy goal.

We have earlier identified the reasons why IT has become a preferred monetary policy framework in many countries. The basic rationale for adopting IT is the need to minimise the negative effects of inflation on economic growth. The evidence indicates that there is no long-run trade-off between output growth and inflation and, indeed, high inflation tends to hamper economic growth.  For its simplicity and transparency, IT has become a strong instrument for attaining the inflation objective of monetary policy. Based on the experiences of most countries, an important rationale for the adoption of IT is the credibility conveyed on the monetary policy process through increased accountability of the monetary authorities and improved transparency of the monetary policy procedure. Part of the reasons for adopting IT is the more effective way it engenders in anchoring inflation expectations as the public is generally carried along in the monetary policy operating procedures.

Masson et al. (1997) identify two major prerequisites for adopting IT as a framework for monetary policy. The first is that the central bank of the country must be in a position to conduct its monetary policy with a strong degree of instrument independence. Towards this end, there should be no symptoms of fiscal dominance which may make the country susceptible to inflationary pressure generated by inappropriate fiscal policy. The second prerequisite is

that the country must not be committed to targeting the level or path of any other nominal variable. In other words, the monetary authorities must be strongly committed to price stability as the primary goal of monetary policy. In particular, the authorities must avoid making any strong commitment to any particular level of the nominal exchange rate. When these two prerequisites are met, the third precondition isthat the monetary authoritiesshould possess the technical and institutional capacities to design and operate the IT framework. A fourth prerequisite is the need for important changes in the decision-making processes of thecountry. For instance, it is suggested that the monetary authoritiesforge relationships with officials from a wide range of institutions which would help to promote a better understanding of monetary policy objectives and the rationale underpinning the stance of monetary policy.

IT as a framework for monetary policy has some advantages. It is different from other frameworks in one important respect. It does not require the condition of a stable relationship between money stock and inflation. The monetary authorities have the discretion to utilize all available information to undertake monetary policy changes. Besides, it is transparent and easily understood by the public. Another advantage of IT is that the explicit inflation target increases the accountability of the central bank and this is likely to prevent the central bank from pursuing an expansionary monetary policy to boost output and employment in the short run. The IT framework enhances communication with the public through varied interactions, such as public campaigns and official publications which release    a varietyof facts on aspects of the IT process. In contrast to these benefits, some critics have argued thatthe IT framework has several disadvantages (Batini et. al., 2005, 163-167). First, it is said to offer too little discretion which could be a constraint to economic growth. The monetary authorities are obligated to commit themselves to low and stable inflation which, in the initial phase, may call for aggressive actions and may negatively affect output. Second, it is claimed that IT cannot anchor expectations because it offers too much discretion over how and when to bring inflation to target. Third, IT implies excessive volatility in the exchange rate which may hamper economic growth. Fourth, IT may not work in many countries because of the stringent prerequisites outlined earlier.

### 2.2.4    Other Monetary Policy frameworks
Certainly, the most actively used frameworks in the conduct of monetary policy were the exchange rate peg and monetary targeting, before the

advent of IT in the 1990s. But, we should mention two other monetary policy frameworks though less widely applied. The first is the targeting of nominal GDP**.** In this case, the nominal anchor is the growth rate of nominal GDP, thus giving importance to output growth, while not ignoring the inflation goal which is recognised by the implicit inflation rate in the nominal GDP target. Some experts have demonstrated that stabilizing nominal GDP should produce better overall economic results than IT, partly due to the problem of forecasting inflation. However, for a number of reasons, advocates of IT maintain that the framework is generally preferable to targeting nominal GDP[6]. These reasons include the difficulties in producing estimates of potential GDP growth, the delays usually encountered in obtaining current information on nominal GDP, and the fact that the concept of nominal GDP is less known to the public than that of inflation. However, it should be observed that no central bank is known to have adopted this framework in preference to other monetary policy frameworks.

Another monetary policy framework that has been identified in the literature is what is called the "just do it" strategy which is a pre-emptivemonetary policy without explicit targets (Mishkin, 2007, 408-410). Some authors have tagged the countries applying this strategy "eclectic inflation targeters", notably the US Federal Reserve and the European Central Bank; but, a slight difference exists in the approaches of the two institutions. The approach applied by the US Federal Reserve involves an implicit nominal anchor to control inflation in the longrun. It looks ahead by monitoring signs of future inflation, using a wide range of information accompanied by periodic pre-emptive strikes against probable future upturns in inflation. The rationale is that with the long lag of monetary policy effects, monetary policy cannot afford to wait for inflation to build up before the monetary authorities respond with appropriate measures. The European Central Bank applies a hybrid monetary policy strategy leaning towards monetary targeting with an element of IT. The European Central Bank announces a goal for inflation over the mediumterm, but it claims not to have an inflation target. Monetary aggregates are then assessed for the implications for future inflation, while other variables are used to assess future economic outlook.

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[6] See, for instance, Bernanke et. al. (1999, 306-307).

## 2.3      The Efficacy of Monetary Policy Frameworks

With the foregoing theoretical review of monetary frameworks, the next logical step is to assess the potential effectiveness of the various frameworks. This type of analysis can be undertaken through cross-country and inter-temporal studies. Several authors have undertaken this type of analysis. For instance, Adam (2008) summarised the findings from studies by Ghosh, Guilde and Wolfe (2003), as well as by Klein and Shambaugh (2007). Assessments are made regarding the relative strengths of exchange rate pegs and monetary anchors. The findings showed that exchange rate pegs have induced lower inflation outcomes, particularly for small/open middle and low income countries. But, in the case of larger and more industrialised countries, differences in inflation outcomes across regimes were only marginal. Also, output stabilisation and growth effects of both anchors were not significantly different across the countries. In his conclusion, however, Adam maintained that in terms of achieving a lower inflation, lower output fluctuations and deeper trade integration, there was no clear evidence of superiority of one anchor over another. The use of the "just do it" approach (implicit anchor) by the US Federal Reserve has been very effective. Inflation has been brought down substantially since the 1980s, while prolonged output expansion has been accompanied by much reduced unemployment rates. The monetary authorities have been able to anchor inflation expectations and thereby have improved their credibility and accountability, although the procedure has not been particularly transparent. The same conclusion applies to the hybrid approach of the European Central Bank.

The inconclusive results from the above studies suggest the need to apply other approaches for the exercise. In this regard, it may be more appropriate to undertake a comparative analysis in a dynamic setting which has been significantly influenced by a rapidly changing global environment[7].This, in turn, has affected the reactions of monetary authorities. Specifically, what needs to be explained is  the tendency, overtime, for countries to move from the use of exchange rate anchors to monetary targeting and, lately, to inflation targeting. The rationale for favouring an exchange rate anchor was based mainly on its simplicity, in terms of implementation, and its ability to enhance trade and foreign investment as a result of relative exchange rate stability, as well as its higher potential to bring down inflation. But, monetary targeting with a flexible exchange rate regime became more acceptable as it permits the

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[7]See, for example, Khan(2003).

pursuit of an independent monetary policy which may be applied to minimize output fluctuations, give the country seignior age revenue, and enable it perform the lender-of-last-resort function. In addition, monetary targeting avoids the problems of speculative attacks and currency crises common in fixed exchange rate regimes.

Practically, targeting of monetary aggregates is easier for the central bank as it has substantial control over such aggregates as base money and narrow money. Unfortunately, monetary aggregates are not easily understood by the public which may undermine credibility and transparency. More importantly, the basic assumption of the monetary policy process—a stable or predictable relationship between the targeted monetary aggregate and the policy goal—has become untenable overtime because of the rapid changes induced by the global process of financial liberalization. The shift into IT can be rationalised by its achievements in reducing inflation and inflation expectations, coping significantly with global financial crises, and minimizing an increase in unemployment. In the case of developing countries, IT would encourage deeper financial reforms, enhance transparency and improved communication with the public. But, its performance needs further empirical investigation in a dynamic global environment.

## 3. EXPERIENCES OF INFLATION TARGETING CENTRAL BANKS

In section 2.3, a brief reference was made to the potential of an IT regime in the context of a comparative assessment of alternative monetary policy frameworks. The aim here is to undertake an overview of the experiences of inflation targeting central banks from 1990 to date. Relying on the rich empirical literature, we examine several elements of IT frameworks, including identification of IT central banks, background to the adoption of IT frameworks, characteristics of IT policy frameworks, performance and overall success of IT, as well as the lessons which prospective IT central banks can learn from such experiences.

### 3.1 Categories of IT Regimes

Several authors have attempted to categorise IT central banks on the basis that IT may be of varying intensities. These include Stone (2003), Stone and Bhundia (2004), Roger and Stone (2005), and Roger (2009), among others[8]. Stone (2003, 7-9), based on the level of the clarity and credibility of nominal anchors for monetary policy, identified IT regimes as full-fledged inflation targeting (FFIT), eclectic inflation targeting (EIT), and inflation targeting *lite* (ITL). Stone and Bhundia (2004, 2-10) proposed a "complete and practical taxonomy" of monetary regimes. Within such regimes, they identified the IT varieties as full-fledged inflation targeting, implicit price stability anchor (which is equivalent to eclectic IT ascribed to Carare and Stone (2003), as well as inflation targeting lite. Roger and Stone (2005, 5-6) also adopted the FFIT, EIT and ITL classification.

Central banks practising FFIT, which appears to be the model form of IT, have the highest level of credibility of monetary policy. They are committed to achieving their inflation targets and to formalising the commitment in the form of a transparent monetary framework that pins accountability of the central bank to the inflation target. A strong commitment to inflation targets leaves them less room to exercise discretionary powers relative to other monetary policy regimes. The EIT central banks, in contrast to those applying FFIT approach, have a lot of credibility such that they achieve low and stable inflation without full transparency and accountability with respect to their inflation targets. They are able to combine the objective of output stabilization

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[8] See also Stone and Carare (2003) and CBN, Research Department (2004).

with that of price stability on the basis of their record of a low and stable inflation and a high level of financial stability. The central banks of five industrial countries are classified as practising eclectic inflation targeting. These are the Central Banks of Singapore, Switzerland, Japan, the European Monetary Union (European Central Bank) and the USA (Federal Reserve). ITL Central Banks rank much below the FFIT and EIT central banks in terms of the credibility of monetary policy. They announce a price stability objective, but are unable to adopt a low and stable inflation as the overriding objective of monetary policy. The low credibility of these central banks is a reflection of their vulnerability to large economic shocks, financial instability and weak institutions. The central banks of nineteen (19) emerging market countries are presently identified as practising ITL. In the rest of this paper, the focus will be on FFIT. According to Roger (2009), the number of countries whose central banks practice FFIT stood at 29 by 2008. These are usually divided into two groups according to their income levels. The first group consists of 14 industrial countries (high income) and the second group consists of 15 emerging market and low income countries(Table 1).South Africa and Ghana are the only African countries on the list.

## 3.2 Timing of the Adoption of IT

An important component of the characteristics of the IT central banks is the motivation for adopting the IT framework[9].Usually, monetary policy framework changes have resulted from fundamental or anticipated structural changes in the economy. The early IT central banks followed this tradition in shifting from previous monetary policy frameworks, such as exchange rate and monetary targeting. In several cases, the decision to make the shift was a culmination of economic crises eliciting dissatisfaction with the performance of the economy, especially regarding inflation trends, as well as exchange rate crises. Typical examples were the UK and Sweden whose shift followed the exit of their currencies from the European Exchange Rate Mechanism (ERM). In some instances, however, the move to IT was not immediately caused by economic crises. The shift was actually made when inflation had been brought down from some high levels. The strategy in such situation was to ensure probable success of their new IT regimes initially which had the tendency to improve the credibility of monetary policy. This would be particularly useful in a period of disinflation when the public's expectations of inflation could be reduced with the announcement of the introduction of the

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[9] Reviews by Bernanke et. al. (1999), Roger and Stone (2005) and Freedman and Otker-Robe (2009) very effectively provide more details on the main issues.

IT framework. In some cases, the adoption of IT was an important element in the process of implementing a broad package of economic reforms. The shift to IT was commenced as a move to increase the autonomy of the central bank, with a view to focusing on the achievement of price stability as the overriding objective of monetary policy. Under such regime, the credibility of the central bank would be enhanced if it could use its policy instruments to achieve and sustain price stability without the temptation to pursue other conflicting short-term goals. Transparency and accountability of the central bank would also help enthrone a regime of low and stable inflation to the benefit of economic growth.

The foregoing reasons for adopting the IT framework were particularly relevant to the industrial countries. The adoption of IT by the emerging market and low income countries in the late 1990s and early 2000s was facilitated by the success of the regime in the industrial countries. But reasons similar to the experiences of the industrial countries were also, to some extent, applicable to the emerging market countries as well.

### 3.3     Inflation Targeting Design

The evidence points to two important elements of the operational modalities of the present IT central banks. First, they had to determine the inflation target parameters which relate to the technical decisions on the IT framework. Second, they had to establish appropriate institutional arrangements. The common practices by IT central banks in these two aspects are outlined below.

### 3.3.1   Inflation Target Parameters

IT central banks took relevant decisions on five key parameters as follows:

(i)     A basic choice is the type of target price index. Usually, preference has been shown for the headline consumer price index (CPI). Alternative choices are the core CPI, GDP deflator, as well as the wholesale and producer price indexes. The use of   a core measure of the CPI that excludes certain components which display a lot of volatility recognises the existence of some exogenous shocks which are beyond the control of the central bank. Although most IT central banks have employed the headline measure, the core measures are also monitored in practice. Presently, only Norway and Thailand apply the core inflation measure.

Most IT central banks have defined the target in terms of the 12-month, point-to-point rates of change in the CPI.

(ii)     Another important parameter is the numerical target for inflation outcomes. Most IT central banks have opted for point targets within symmetric ranges. The medium-term target level for 12-month inflation rates are between 1.0 and 3.0 percent and average ranges are about 2.0 percentage points wide (i.e., target rate plus or minus 1.0 percentage point). Presently, two industrial countries, the UK and Norway adopt point targets. All emerging market countries, except Slovakia, Thailand and the Philippines employ target ranges.

(iii)    The inflation target horizon is an essential parameter which defines the period over which the central bank is held accountable for meeting its target. Expectedly, central banks have selected the target horizon, taking into account the lags between the introduction of policy actions and their effects on inflation outcomes. Equally important has been the need to adopt longer horizons than the minimum required so as to allow the central bank some flexibility in varying the adjustment process of inflation towards the target range. At the start of the IT process, horizons have varied between the annual and medium-term levels. As inflation adjusted itself, the horizon tended to become indefinite.

(iv)    The so-called escape clauses have featured in the frameworks of a few IT central banks, but are rarely applied in practice. The clauses defined events that could justify deviations of inflation from the specified target. Such written clauses have not been common with most IT central banks. In any event, central banks had the option to apply core inflation measures and targets which would take such occurrences into account.

(v)     Inflation forecasts have been crucial for IT in both industrial and emerging market countries. Inflation forecasts have been central to the new framework, especially in the emerging market countries. The basic idea is that under the framework, the stance of monetary policy is changed whenever there is evidence that future inflation would deviate persistently from the target path. In contrast to the exchange rate peg or monetary targeting, inflation forecasts have made use of all available information to determine future inflation.

### 3.3.2 The Institutional Framework

Four basic elements constitute the institutional framework of the IT experiences of both industrial and emerging market countries. These are issues of governance, the decision making process for monetary policy, as well as issues relating to accountability, and transparency:

(i) The foundation of the governance structure is the legal instrument of the central bank. Evidence shows that most inflation targeting central bank laws have enshrined price stability as the primary objective of monetary policy. Only two central banks have indicated IT as the nominal anchor in their central bank laws, while no IT central banks have explicit objectives for exchange rate, output growth or financial stability. The inflation target range has more often been announced by the government or the central bank or, in some cases, jointly by the government and the central bank. In a few instances, the central bank had the privilege to announce the target alone. Usually, instrument independence has been specified in the laws of inflation targeting central banks prior to adopting IT, while if it was not specified prior to adopting IT, such power has been conferred soon after IT was adopted.

(ii) In most IT central banks, the monetary policy process has revolved around the Monetary Policy Committee (MPC) of the central bank. It is the main decision making body and merely informs the board of the central bank of its decisions. In most cases, the MPCs comprise the boards of governors of the central banks and a few outsiders. The frequency of meetings is typically monthly.

(iii) Under IT regimes, central banks are held accountable for achieving specified inflation targets. The major stakeholders to whom the IT central banks have been accountable are the general public, the government and the national legislative bodies. Assessment of their performance has been based on deviations of actual inflation outcomes from targets, as well as on actions being taken to ensure that future inflation outcomes would fall within targets.

(iv) Transparency has been an important measure of central bank actions under IT. Transparency is important because of the lag between changes in the stance of monetary policy and inflation outcomes. This has allowed the stakeholders to assess the commitment of the central

bank to achieving the inflation target. General evidence has shown that FFIT countries tend to have higher ratings under the IMF's Code of Monetary and Financial Policy Transparency. Transparency has been ensured through institutionalized calendar of MPC meetings, the publication of meeting minutes, the announcement and explanation of monetary policy actions in press releases and conferences, as well as the appearance of central bank officials at legislative meetings. The introduction of inflation reports has helped to convey coherent information to stakeholders. The frequency of inflation report releases has also increased as a result.

### 3.4    Performance and Challenges under the IT Framework

Several studies, using broadly similar methodologies, have been conducted to assess the impact of IT on the adopting economies. Some of the studies conducted in the late 1990s focused on the industrial economies. Thus, the studies covered relatively short periods and few countries. However, subsequent studies have spanned longer periods while embracing, in addition, both industrial and emerging market economies. The results of some of these studies are summarized below, leading to an overview of the success of IT so far and the lessons learned that can be identified for the benefit of prospective IT central banks.

Bernanke et.al. (1999) undertook a comprehensive survey of the experiences of the early industrial countries (New Zealand, Canada, the United Kingdom, Sweden, Israel Spain and Australia) adopting IT as a framework for monetary policy. Their basic finding was that IT resulted in lower inflation in the countries studied. Both the rates of inflation and the public's inflation expectations, in comparison to their previous experiences, were significantly reduced as a result of the adoption of IT. Their study also found that resulting low inflation remained at low levels even during the later periods of cyclical economic expansion. However, their finding suggests that inflation expectations were reduced only after a lag. Consequently, countries adopting IT did not experience significant output losses as a result of lower inflation levels. The experiences of Canada, the United Kingdom and Sweden further suggest that the effects of economic shocks on inflation were not significant because people's expectations had been favourably adjusted under the IT framework. The concern that focusing too much on maintaining low inflation would lead to low and unstable growth in output and employment, was not borne out by the study's findings. Although a reduction in inflation was associated with a

low output level during the disinflationary process, the achievement of low inflation tended to assist in boosting output and employment to normal or even higher levels.

Batini et.al. (2005) focused primarily on the performance of IT in 13 emerging market countries[10]. The study compared them with 29 emerging market countries that had not adopted IT. Their findings are summarized below.

(i)      The levels and volatility of inflation in many of the countries, prior to the adoption of IT, were quite high and variable. These, however, converged to low and stable inflation after implementing the IT framework. The non-inflation targeting countries also showed overall improvement in inflation outcomes and many were able to stabilize inflation at low levels, but, as a group, showed less strong convergence than the inflation targeting nations.

(ii)      With respect to output growth and volatility, the situation was not that clear, but output volatility was generally lower after the adoption of IT for both groups, while average growth rates remained stable.

(iii)      Batini et al. (2005) noted that assessment of the impact of IT could only be preliminary due to the short period covered by the assessment. However, they concluded that IT had been associated with lower inflation, lower inflation expectations and low inflation volatility than in those countries not adopting IT. Also, there had not been negative effects of IT on output performance, as well as the volatility of interest rates, exchange rates and international reserves.

The study by Roger and Stone (2005) was very comprehensive, covering all the 22 full-fledged inflation targeting central banks at that time. Their findings were similar in many respects to those of Batini et.al. (2005) reviewed above. Inflation outcomes were generally within targets for both industrial and emerging market countries. However, the study observed quite frequent misses of targets in the IT regimes and, in reviewing the eight largest inflation target miss episodes, attributed the misses to external and domestic shocks. The external shocks arose from changes in capital inflows, as well as

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[10] These were Philippines, Israel, CzechRepublic, Peru, Hungary, Korea, Brazil, Chile, Thailand, Poland, Colombia and South Africa. By 2008, some of these countries had been reclassified as high income countries.

movements in world oil prices. Domestic shocks were triggered mainly by changes in fiscal and monetary policies, as well as in domestic food supplies. The study concluded that IT, based on the experiences of the 22 countries studied, had been flexible, attributable mainly to the high levels of transparency and accountability which gave the IT countries considerable credibility. It was also concluded that IT regimes had been resilient as reflected in the fact that no country had dropped an IT regime. IT regimes had survived very large shocks and target misses without succumbing to exits from the regime, in contrast to the performance records of the exchange rate peg and monetary targeting regimes. The resilience of IT largely reflected its operational flexibility which had avoided conflicts between the inflation target nominal anchor and other potential anchors. The performance of emerging market countries under IT had been impressive given their greater vulnerabilities in terms of financial stability, exchange rate pass-through and domestic and external shocks.

The study by Roger (2009) covered 29 IT central banks[11]. Three aspects of performance were reviewed as follows:

(i)     With regard to performance in achieving inflation targets, both high and low income countries missed their targets by up to 60% of the time during the period of disinflation. Misses by low income countries were biased upwards, while those of high income countries were generally balanced. Under stable IT, groups performed better, recording less inflation volatility and fewer misses of targets.

(ii)    Reviewing the broader assessment of macroeconomic performance under IT, compared with alternative policy frameworks, both IT and non-IT low income countries recorded major reductions in inflation rates and improvements in growth rates, though the IT countries performed better on the two assessments. Also, both groups of countries experienced large reductions in inflation and output volatility, with the IT countries doing much better in the two areas.

(iii)   On the ability to cope with the most recent oil price increases and global financial shocks, IT countries appeared to have done better than others in minimizing the inflationary effects of the price shocks in the

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[11] This study is an update of the study by Roger and Stone (2005).

previous two years and were expected to be less affected by the impact of the financial crisis. However, this assessment was tentative as the impact of the financial crisis was still unfolding at the time of the study.

Ball and Sheridan (2003) undertook a study focused on the industrial countries. Specifically, they assessed the effects of IT on macroeconomic performance in 20 member countries of the OECD, comprising 7 that had adopted IT during the 1990s and 13 which had not. They concluded that there was no evidence to show that IT improved economic performance in those countries that had adopted it, as measured by changes in inflation, output and interest rates. Considered as a group, inflation targeting countries recorded improved performance, on average, between the period before inflation targeting and the targeting period. But they noted that the non-inflation targeting countries also improved their economic performance about the same time, indicating that better performance resulted from factors other than IT. They suggested that the finding could be due to the similarity in the policy instruments of the countries covered by the study.

Notwithstanding the findings of the study by Ball and Sheridan (2003), the preponderance of the up-dated literature on the issue shows that IT as the framework for monetary policy in the countries reviewed above had been significantly successful. Evidently, as time elapses and more evidence is revealed, stronger conclusions should emerge.

### 3.5 Lessons for Prospective IT Central Banks

From the experiences of IT central banks reviewed earlier, a number of lessons can be identified for the benefit of countries that intend to adopt IT as a framework for monetary policy. These lessons are not intended to be prerequisites for adopting IT. They are identified as factors that are useful for transition to IT. The most important are outlined below.

(i)     A central bank's planning to introduce IT should have in its enabling law power to maintain domestic price stability as the primary goal of monetary policy. It must have a *de facto* mandate to pursue the mandate by being able to select and apply its monetary policy instruments freely. It is very critical for government to be part of the initial process, through an open expression of its commitment to the adoption of IT. Preferably, the commitment of government should be expressed in

a joint agreement between it and the central bank. The other key stakeholders, i.e., the legislature and the general public, must be clearly brought into the picture from the start of the IT process.

(ii)     Before the introduction of IT, the domestic economy must have gone through a disinflationary process, such that the probability of success of the incoming IT regime would be very high. This has been the general trend although some IT central banks, indeed, used IT to induce a disinflationary process.

(iii)     Monetary policy should not be dominated by fiscal policy. To avoid fiscal dominance, government finances must be efficient such that the bulk of government borrowing would be raised from the financial markets and government access to central bank credit would be restricted or even eliminated. In this regard, fiscal policy and public debt management must be coordinated to support the IT regime.

(iv)     Exchange rate objectives must be subordinated to the IT framework. Foreign exchange market interventions are useful only to manage the effects of temporary shocks. When this conflicts with the IT regime, the latter takes precedence. A strong external position is useful to enable monetary policy pursue the inflation target as its primary objective.

(v)     The application of a central bank's policy instruments to influence inflation presupposes that it must have a deep understanding of the links between the stance of monetary policy and inflation.

(vi)     The financial system must be well developed and stable. This implies that the financial markets would be well developed, such that the central bank can use its market-based policy instruments. Weaknesses in financial market infrastructure should be minimized. Financial stability should be sufficient to avoid concerns on financial system soundness which would divert attention from the IT regime.

# 4. THE EVOLUTION OF MONETARY POLICY FRAMEWORKS IN NIGERIA

Several issues need to be addressed regarding the feasibility and modalities for introducing FFIT in Nigeria. These include the nature of monetary policy objectives, the probable effectiveness of the various monetary policy frameworks that could be applied over a specified time frame, the relevance of the institutional structure for monetary policy formulation and implementation, the monetary policy outcomes, as well as an appraisal of the minimum requirements for the FFIT monetary policy regime.

## 4.1 Objectives of Monetary Policy

The objectives of monetary policy in Nigeria have periodically been enshrined in the various enabling laws of the CBN. In this regard, the objectives of CBN's monetary policy operations have been guided by three successive legislation. The first was the **CBN Act, 1958** which formally established the CBN as a monetary authority in Nigeria. Under that law, the CBN was mandated to perform four primary functions, including the issuance of legal tender currency, maintenance of external reserves to safeguard the international value of the domestic currency, promotion of monetary stability and a sound financial system, and acting as banker and financial adviser to the Federal Government of Nigeria. Through this law, the CBN had enormous discretionary powers to undertake its basic functions, although the Bank was as yet to face the challenges of a virile economy. Those discretionary powers were curtailed by various subsequent amendments to the **CBN Act, 1958** between 1968 and 1970, mainly by subjecting the Bank to the supervisory authority of the Federal Ministry of Finance. The situation was, however, reversed by the **CBN Act No 24, 1991** which, among other things, directed that the CBN report directly to the Office of the President instead of reporting through the Federal Ministry of Finance. The third legislation was the **CBN Act, 2007** which conferred "instrument autonomy" on the Bank. It was also in this **Act** that the maintenance of price stability was specifically spelt out as one of the key functions of the CBN. This could only be inferred from earlier CBN legislation. Along with these basic **CBN Acts**, two banking laws were promulgated which enhanced the supervisory authority of the CBNon the operations of banks in Nigeria. The banking laws were the **Banking Act No. 1, 1969**, as well as the **Banks and Other Financial Institutions Act No. 25, 1991**.

A brief overview of the various functions assigned to the CBN in its enabling laws indicates that the mandate of the Bank has focused on the maintenance of internal and external stability. Specifically, the Bank's monetary policy objectives have focused on the sustenance of price and exchange rate stability. While the maintenance of low and stable inflation has been emphasized, the need for exchange rate stability has also been stressed, primarily because of the high degree of openness of the Nigerian economy. Alongside these primary objectives, the CBN is also required to support the process of economic growth and development and, over the years, the Bank has taken on several developmental roles as well. In all this, however, it appears that the Bank has always been aware of its primary responsibility of achieving low and stable inflation, as reflected in its regular monetary, credit, foreign trade and exchange rate policy guidelines. This objective is targeted implicitly on the monetary policy process. Over the last ten years, the CBN has assumed annual inflation rates of a single digit in its monetary targeting framework.

## 4.2    Nigeria's Monetary Policy Frameworks

The conduct of monetary policy in Nigeria has been guided by two major policy frameworks since the commencement of the operations of the CBN in July 1959[12]. Historically, the application of an exchange rate targeting regime had existed between 1959 and 1973, while the use of a monetary targeting framework started in 1974 and is still the current practice.

### 4.2.1.   Exchange Rate Targeting Framework

As a colony of Britain before October 1, 1960, Nigeria adopted economic policies dictated by the British Government. One of the key legacies of colonial economic policy was the anchoring of monetary policy on a fixed exchange rate regime in which the exchange rate of the Nigerian pound was fixed at par to that of the British pound. This action enabled the Nigerian monetary authorities to have a firm control on the growth of the money supply which had a salutary effect on the nation's balance of payments and sustenance of price stability. During the regime of the fixed exchange rate, the parity between the Nigerian pound and the British pound was broken for the first time in 1967 following the devaluation of the British pound which Nigeria did not adopt. The decision of the Nigerian monetary authorities was based on the prevailing civil war which was consuming a lot of resources and

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[12] The materials used in this section rely substantially on CBN's in-house papers by Ajayi (2008), Ibeabuchi (2007),Mordi(2008), and Uchendu (2008).

the fact that devaluation of the Nigerian pound would have induced inflationary pressures, arising from increased import prices, while there was no immediate capacity to increase exports. Following these considerations, the Nigerian pound was pegged to the US dollar while restrictions were imposed on imports through direct controls.

The onset of a global financial crisis in the early 1970s resulted in the devaluation of the US dollar to which the new Nigerian currency (naira) had been pegged, in line with the application of the Bretton Woods system of adjustable pegs. Problems arose from the pegging of the Nigerian naira to the US dollar as the Nigerian currency had to be devalued with the US dollar in 1973, even when the economic fundamentals did not dictate such action. The naira was subsequently pegged to a basket of 12 currencies of Nigeria's major trading partners. From the early 1970s, and especially after the Nigerian civil war, Nigeria derived large foreign exchange resources from the substantial increase in oil prices and export earnings. In the decade of the 1970s, the share of oil exports out of the total export earnings nearly doubled, while the share of non-oil exports correspondingly declined. Government revenue and the nation's external reserves increased significantly, while public expenditures grew.   Following the rapid expansion in domestic liquidity, which induced high inflation, a change in the framework for monetary policy became necessary.

### 4.2.2    The Monetary Targeting Framework

Monetary targeting, as a framework for monetary policy, was introduced in 1974 and is subsisting till date. Under the regime, direct monetary control was applied from 1974 to 1992, while indirect monetary control came into use from 1993 and is still in vogue. The main ·strategy of monetary policy under the monetary targeting framework is to control the growth of monetary aggregates in the belief that inflation is caused primarily by the persistent expansion in money supply. To maintain internal balance, both inflation and output growth rates are set at levels consistent with the expected expansion in aggregate demand.

The monetary targeting regime has been applied in two phases. The first phase was the period of **direct monetary control** aimed at promoting rapid economic growth. The main strategy was to ensure that adequate credit went to the real sector of the economy. The main instruments were the issuance of credit rationing guidelines to banks and the specification of

sectoral distribution of credit. Interest rates were also maintained at relatively low levels, through administrative controls, to stimulate investment and growth. Available evidence showed that the flow of credit to the identified priority sectors was not always compliant with the guidelines, thereby failing to significantly enhance investment and output, as well as controlling inflationary pressures (Ojo, 2000, 192-209). The second phase of monetary targeting was the period of **indirect monetary control** which commenced in September 1993. During this phase, the policy strategy was to apply market-based indirect policy instruments to regulate the growth of specified monetary aggregates. The monetary base is the operating variable which is managed by the CBN, while the market is left to determine interest rates and credit allocations. The general approach is to estimate the optimal level of the money supply given the pre-determined targets for GDP growth, inflation rate and change in external reserves. Market-based policy instruments are then applied to restrict the credit creating capacity of the deposit money banks (DMBs).

The principal tool used in the indirect monetary control framework is the open market operation (OMO) which is the sale or purchase of government or other eligible securities by the CBN aimed at influencing in a desired direction the reserves of the DMBs, their ability to extend credit as well as their interest rate levels. CBN's OMO is conducted in several ways, including outright sales or purchases of securities in the market, repurchase transactions (REPOs) involving the purchase or sale of securities with the obligation to reverse a transaction on an agreed date, matched sales purchase transaction which is a simultaneous sale and purchase of securities for delivery at a future date, and transactions involving the two-way quote. CBN's OMO is usually complemented by the use of reserve requirements, discount window operations, transfer of government deposits between the CBN and the DMBs, and moral suasion. The reserve requirement is aimed at sterilizing existing excess liquidity in the DMBs, while discount window operations provide an outlet for the DMBs and discount houses (DHs) to obtain funds to manage unexpected situations, such as illiquidity or temporary cash squeeze. The discount window operation is usually conducted as an overnight facility, collateralized by holdings of government debt.

In December 2006, an important element in the framework of indirect monetary control was introduced by the CBN. This was the replacement of the Minimum Rediscount Rate (MRR) by the Monetary Policy Rate (MPR). The

MRR had been traditionally used by the CBN as the nominal anchor for its policy rate. The MRR signalled the direction of CBN's interest rate and monetary policies. But the MRR had not been effective as an anchor rate due to the excessive growth in domestic liquidity attributed to the expansionary fiscal operations of government. MRR was thus unable to influence the money market rates which remained volatile and could not effectively transmit monetary policy. Consequently, the CBN introduced a new framework in which the MPR is targeted to influence short-term overnight interest rates in the money market. MPR was initially fixed at 10.0 per cent with a corridor of 6.0 percentage points, 3.0 percentage points above the MPR for lending facility and 3.0 percentage points below the MPR for deposit facility. Under the new framework, a standing lending facility (SLF) and a standing deposit facility (SDF) were established for money market participants. The CBN has, by this move, become a true lender of last resort while participants in the money market are encouraged to deal in the money market and among themselves, rather than resort to the CBN at the first available opportunity. The MPR has been adjusted downwards, in line with the perceived financial environment. The CBN brought down the rate from 10.0 per cent in 2006 to 8.0 per cent in May 2009 and to 6.0 per cent in September 2009.

## 4.3 The Shift from Short- to Medium-Term Monetary Policy Horizon

From the commencement of the monetary targeting framework in Nigeria, the horizon of policy implementation has been fixed to coincide with the annual budgetary cycle of the Federal Government. Over the years, this practice has not proved conducive to the needs of a virile and efficient monetary policy. It is recognized that inflation is a monetary phenomenon in the medium to long term. In this regard, monetary policy should naturally have at least a medium-term perspective (Mordi, 2008). Indeed, the annual monetary policy framework was negatively affected by the growing level of fiscal dominance, which made it difficult to pursue the medium-term objective of low and stable inflation. In consideration of these problems and the recognition that monetary policy affects the ultimate policy goal with a substantial lag, the CBN, in 2002, introduced a medium-term monetary policy framework covering two years at a time. The measure has the potential of achieving the price stability objective, in the medium to long term, by minimizing the problems of time inconsistency and overreaction to temporary shocks.

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## 4.4     The Institutional Structure for Monetary Policy

As indicated earlier, the CBN initially had significant **de jure** discretion over monetary policy, but subsequently passed through a phase when it had more or less joint responsibility with the Federal Ministry of Finance. The situation was slightly ameliorated by the **CBN Act, 1991** when the CBN was directed to report directly to the Presidency. Finally, under the **CBN Act, 2007**, it achieved a good measure of instrument independence. In the last few years, the monetary policy operations of the CBN have been steered by the Monetary Policy Committee (MPC) which was first created in 1999 and later enshrined in the **CBN Act, 2007**. The MPC has general responsibility for formulating and implementing monetary and credit policy, while four other committees were later established,as follows, to give the MPC necessary technical support.

The Monetary Policy Technical Committee (MPTC) is the technical arm of the MPC. It prepares an economic report for the MPC which focuses on domestic and international economic developments and makes policy recommendations, especially as they may affect monetary policy operations. The Monetary Policy Implementation Committee (MPIC) is expected to ensure effective implementation of the decisions of the MPC. It also determines the daily and weekly liquidity levels required to be withdrawn or injected into the system, through the CBN. It forecasts the daily liquidity requirement, designs and adopts the strategy for bridging any liquidity gap identified, as well as the instruments to be applied. The Liquidity Assessment Committee (LAC) assesses the actual daily liquidity level in the system for purposes of mopping up any excess liquidity through the sale of treasury bills and foreign exchange. The Fiscal Liquidity Assessment Committee (FLAC), an inter-agency body, is aimed at establishing a close link between the monetary and fiscal authorities, as well as other relevant government agencies, with the primary objective of obtaining high frequency data on the daily fiscal operations of the Federal Government which impact on liquidity and price stability.

## 4.5     Monetary Policy Outcomes

An important factor that could necessitate change in a monetary policy framework is the ability of the framework to deliver the objective which it is supposed to achieve. If the monetary policy framework consistently misses the established objectives or targets, a review of the framework is called for. This underpins the rationale for analyzing the various outcomes of monetary policy implementation in Nigeria, in relation to the specified targets. The analysis is

focused on Nigeria's monetary policy framework in the last ten years (2000 - 2009), a period which witnessed major policy reforms in the financial system[13].

First, we examine the changes in the monetary and credit aggregates which are shown in Table 2. Comparing the policy outcomes with targets for broad money (M2), it is observed that 2004 was the only year when the actual growth was below the target. In the other years between 2000 and 2009, actual growth in M2 exceeded the targets by substantial margins. The pattern was the same for narrow money (M1), a major component of M2. For net domestic credit (NDC), the actual growth was less than the target in four years (2000, 2002 and 2004-2005), while it exceeded the targets in all the other years. In all the years, the growth in credit to the government exceeded the targets by wide margins. Credit to the private sector was below the target in only two years, while it exceeded it in all the other years.

Second, we examine changes in the real variables - growth in real GDP and the inflation rate. Growth in real GDP exceeded the target in four years (2000, 2003-2005). Growth performance in 2003 of nearly 10.0 per cent was rather impressive and coincided with an upturn in the performance of the oil sector. In the same vein, growth in real GDP has not been very impressive since 2006, coinciding with the downturn in the global economy. Actual inflation was below target, also in four years (200, 2004 and 2006-2007). In three of those years, inflation was remarkably single digit.

Third, we review developments in other macroeconomic indicators, such as the interest and exchange rates. Monetary policy operations recorded significant gains in these aspects. Interest rates were generally on the downward trend during the period. Average maximum lending rates persistently declined from a peak in 2001 and remained fairly stable from 2004. Inter-bank and other short-term rates followed a similar pattern, induced by the application of the new policy rate (MPR), especially from December 2006. Similarly, the domestic currency has strengthened with the appreciation and stability of exchange rates. Also, exchange rate convergence was achieved between the CBN's foreign exchange operations and inter-bank rates from December 2005, while convergence was attained in all the segments of the

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[13]Most notable was the consolidation of the domestic banking system in which 25 commercial banks emerged from the previous 89.

market from July 2006 to mid-2008. But this achievement was reversed with the onset of the global economic recession, from mid-2008.

On the whole, Nigeria's monetary policy operations faced a number of challenges during the period, such as the excessive growth in liquidity arising from the substantial increase in oil price and increased capital inflows . At the same time, monetary policy has been proactive in meeting the challenges. As indicated earlier, the CBN introduced the more appropriate medium-term monetary policy framework in 2002, while the bank consolidation programme commenced in 2004. The CBN undertook more aggressive foreign exchange interventions and deployed public sector deposits in and out of the DMBs to fight the liquidity upsurge. Fortunately, the fiscal profile of government improved and a legal framework was designed to support better coordination between monetary policy and fiscal operations.

## 4.6      The Prospects for an IT Framework

Given the foregoing review of the monetary policy operations in Nigeria during the past 50 years, the question arises as to whether there is need for a shift from the current monetary targeting strategy of the Bank. The review in this section investigates two sets of issues towards providing answers to the above question. The first set of issues relates to the challenges of the existing monetary targeting framework. The second set of issues relates to whether Nigeria meets the minimum requirements for a shift to IT and the choice of an appropriate monetary policy framework in the future, given the various the options open to Nigeria.

### 4.6.1    Challenges with the Current Monetary Targeting Regime

A major problem with the current monetary targeting regime is its inability to achieve the specified targets sustainably. The sample of ten years used for the assessment indicated that targets for monetary and credit aggregates were more often than not missed. The targets have been attained sporadically, rather than in a consistent manner. A similar conclusion is applicable to the other monetary indicators and real variables. However, as we observed earlier, a modification of the monetary policy instruments and strategy had induced some improvement in compliance with the targets, while a more conducive fiscal profile had produced more acceptable outcomes. The prospects for sustained coordination between monetary and fiscal policies, which is a central issue, may appear better now on the basis of recent developments, especially with the ***Fiscal Responsibility Act***. However, the

achievement of sustained price stability is less of a legal issue and more of commitment to the goal, by both the monetary and fiscal authorities.

There are technical difficulties with the monetary targeting regime. One of them is the issue of the relationship between inflation and the intermediate monetary variable (M2). At a general level, it is observed that while monetary aggregates have expanded significantly above the targets in the sample period, inflation has tended to moderate substantially against expectations. In a monetary targeting framework, the control of a monetary aggregate assumes the existence of a stable demand for money function, or a stable velocity. In a situation where money demand fluctuates widely, the transmission mechanism of monetary policy becomes unclear, indicating that the CBN cannot easily control monetary growth and inflation. The instability in both base money velocity and M2 velocity has been noted by Mordi (2008) and Uchendu (2008). Over a forty-year period (1966-2006), both variables have fluctuated widely, mostly below their average levels. Also, monetary targeting, under the approach of controlling bank reserves, assumes a stable relationship between the money supply and base money, the operating target, which translates into an assumed and stable money multiplier. Over the forty-year period reviewed by Mordi (2008), the M2 multiplier was rather unstable. Hence, Uchendu (2008) has concluded that "the ideal conditions for the effectiveness of the monetary targeting strategy no longer exist in the case of Nigeria" which justifies the need for a change in the monetary policy framework.

However, in times of crisis, such as the one recently experienced by the global economy, any monetary policy framework would face severe challenges. Logically, this should not be the ideal time to shift to a completely new framework. A planned change should be undertaken in a relatively quiet economic environment, while the lessons learned from past economic shocks would be taken into account in packaging the change. The global economic downturn, which began in 2008, has affected most world economies. A recession that affects countries such as the USA and the European Union would inevitably spread round to other countries, particularly the emerging market economies. Nigeria is an emerging market and an open economy, largely dependent on oil exports and imports of all types. By mid-2008, the world price of crude oil had reached a peak of US$140 per barrel, but by year-end, it had declined to about US$40 per barrel. It started to pick up, gradually, from February 2009. Expectedly, the global economic crisis has

negatively affected the Nigerian oil sector already disrupted by the internal Niger-Delta crisis. Thus, the gains made from the upturn ending in mid-2008 had been substantially eroded after mid- 2008. Major macroeconomic indicators have started to move in the wrong directions. For instance, the level of external reserves had declined from US $53.0 billion at the end of 2008 to US $44.8 billion by May 2009. The exchange rate (end-period) in the official foreign exchange market had depreciated from ₦132.56 per US dollar to ₦148.17 in the same period, while the bureau-de-change rate had depreciated from ₦139.00 to ₦170.00 per dollar by May 2009. Headline inflation (year on year), had moved from single digit levels of 8.5 and 6.5 percent in 2006 and 2007, respectively, to 15.1 percent in 2008, but started to decline thereafter, reaching a level of 12.0 percent by December 2009. The foregoing developments suggest that while a shift to a new monetary policy framework may be logical, it should be cautiously done and must, in any case, be preceded by careful planning.

### 4.6.2    Does Nigeria Meet the Minimum Requirements for IT?

Another important matter worthy of discussion is the issue of meeting certain minimum requirements for adopting IT. On the basis of the experiences of both industrial and emerging market economies that have adopted IT as a framework for monetary policy, the literature is filled with specifications of requirements that would ensure success of the IT framework. In what follows, we discuss four categories of minimum requirements, in line with the recommendations of Batini et al. (2005, 175-178) and in the context of the Nigerian environment.

The first requirement is **the need for institutional independence** for the central bank, such that it has full legal autonomy and is free from political pressures that would induce conflicts with the primary objective of price stability. Most observers, including the CBN, accept that the **CBN Act, 2007** confers adequate instrument autonomy on the CBN[14]. The **Act (FGN, 2007, A65**) expressly states that the CBN "shall be an independent body in the discharge of its functions." However, whether the CBN can exercise this authority is a practical issue. The CBN's discretionary powers could be exercised, to a large extent, by a strong leadership in the CBN. However, there are several legal provisions of the **CBN Act** that have the potential to limit the Bank's discretionary powers. These include the full ownership of the CBN by the

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[14] See, for example, CBN (2009, 11-28)

Federal Government, the inclusion of government officials on the composition of the Board of Directors, the permissible borrowing by the Federal Government from the CBN, and the appointment of members of the CBN Board and approval of their remuneration by the President. For the purpose of implementing the IT framework, the CBN only needs to demonstrate strong competence to convince government of the need to make price stability (already enshrined in its law) its primary goal. If this happened, the limitations outlined above would not be sufficient to derail the operation of the IT framework.

The second requirement identified in the literature is **the need for a well-developed technical infrastructure** which, among other things, includes capabilities in inflation forecasting and modelling, as well as the availability of relevant economic data. Most stakeholders in economic management in Nigeria agree that there is a dearth of relevant statistics, coupled with inadequate quality and long lags in the release of most economic data. The situation has, however, improved appreciably over the last decade .On the issue of capacity, the CBN has continued to strengthen organisational capacity, through staff retraining and recruitment.

The third requirement is **the need for full deregulation of domestic prices** if inflation is to be fully controlled. Since the liberalisation of domestic economic activities started in Nigeria in the mid-1980s, most prices in the financial, fiscal, external and real sectors have been deregulated. Regulatory bodies have been established to enforce codes of good behaviour, in line with international best practice, and to check arbitrary increases in prices, especially of privatised enterprises. However, some controls of prices in the petroleum products sub- sector have remained and further deregulation in the sub-sector appears constrained by political pressures. Deregulation in the foreign exchange market has progressed significantly. However, most stakeholders in Nigeria prefer to have a strong naira, irrespective of whether or not such strength derives from a robust domestic economy. The penchant for a strong naira (which may imply its over-valuation) is to aid the easy importation of goods and services. Indeed, there is a risk that stakeholders may push the government to have an exchange rate policy that could conflict with CBN's price stability objective. These concerns can be effectively addressed in the general mobilisation that would precede the adoption of an IT framework.

The fourth requirement is **the need to have a healthy financial system**. Among others things, this implies a sound banking system and well developed financial markets. Such attributes would ensure an effective monetary policy transmission mechanism. In order to promote the efficiency of the Nigerian financial system, numerous reforms have been introduced since the mid-1980s. Reforms have been carried out in all the segments of the financial system. The monetary policy process has been reformed through the introduction of new policy instruments and institutions. All these reforms just need to be fine-tuned appropriately for the operation of an IT framework. The **CBN Act, 2007** was promulgated to strengthen the CBN. Following the resolution of distress in the banking system in the 1990s, the CBN carried out the consolidation exercise of banks to ensure virile operations and an improved transmission mechanism of monetary policy. The payments system has also been significantly transformed. The regulatory and supervisory framework of the financial system has been significantly improved. The regulatory and supervisory framework of the financial system has been enhanced through stronger apex institutions, such as the CBN, the NDIC, the SEC, NAICOM, the FMBN, and PENCOM. Overall, the reforms have assumed a dynamic dimension by which the **Financial System Strategy (FSS) 2020** programme has been designed to upgrade the Nigerian financial system to an international status. To this end, it may be said that financial reform is an on-going programme and it is unlikely that anyfinancial reform can be completed at any point in time, in view of continuing global challenges. However,financial reforms can be prioritized towards the commencement and operation of an IT framework.

Batini et al. (2005) have carried out an empirical analysis to determine whether a country, in fact, needs to meet all the specified requirements before the introduction of an IT framework. A special survey was carried out through a questionnaire to 21 IT central banks and 10 non-inflation targeting emerging market central banks. The general evidence was that none of the IT countries satisfied all the four requirements before IT was adopted. As expected, the industrial country central banks were better off regarding the status of putting in place the four requirements than the emerging market central banks. The results of the survey suggest that the absence of any of these requirements is not an absolute constraint to the adoption and success of an IT framework. The results also suggest that emerging market economy central banks would have to work harder in attaining all of the requirements in order to stabilize their IT regimes. The evidence is that, even if the four

requirements are not fully in place, the adoption of IT tends to induce rapid improvements in institutions, including technical and institutional structures, particularly of data development and forecasting, which are central to the IT framework[15].

The overall conclusion from the foregoing review is that the fundamental requirement for adopting IT as a framework for monetary policy in Nigeria is the commitment of both the Federal Government and the CBN (going beyond the spirit of the **CBN Act, 2007**) to make price stability the overriding goal of monetary policy. This implies a commitment on the part of the authorities to implement all the necessary activities for applying the new policy framework. Other activities for ensuring a more robust IT framework are already at some minimum levels which can be upgraded within a programme of the design and implementation of an IT framework.

### 4.6.3    Options for CBN's Monetary Policy Framework

The foregoing review of CBN's monetary policy frameworks leads us to the issue of what options are available regarding the choice of a monetary policy framework that might best achieve the primary objective of price stability. One option is to go back to the exchange rate peg. This is unlikely as it is not only out of vogue, but also because the Nigerian economy is not in any extreme negative economic circumstances, such as hyperinflation for which the exchange rate peg is ideal. Another option is to continue with the current monetary targeting framework, perhaps with relevant adjustments. It may be difficult to make any meaningful adjustments in the face of the fundamental limitations earlier attributed to the framework. As the world economy becomes more globalized and the Nigerian economy becomes more sophisticated, the monetary targeting framework would become more and more irrelevant for the conduct of monetary policy. This third option is to adopt a full-scale IT framework with a well-planned programme of implementation modalities. The third option appears to be the most viable. As the empirical evidence has shown, Nigeria should not have to wait for an indefinite period to attain the so-called preconditions. In any event, after a long period of economic and financial reforms, the CBN can sustain the pace of reforms which would enhance the adoption of the IT framework.

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[15] The more recent study by Freedman and Otker-Robe (2009, 5-7) came to the same conclusion.

There are two important considerations in making a choice. First, the design and operational issues surrounding the adoption of the IT framework take time to be put together for implementation. Second, the idea of an immediate introduction of an IT framework should be ruled out in the midst of the on-going global and domestic economic uncertainty. The optimal position is for the CBN to determine a period of time to address these operational issues before the formal introduction of the IT framework.

# 5.   PROPOSALS FOR CBN'S TRANSITION TO AN FFIT FRAMEWORK

Following our broad conclusion that the CBN should move into an IT monetary policy framework, policy proposals that would facilitate the transition can now be examined. However, it is necessary to determine a broad timeframe for the transition. By end-December 2006,some major issues on CBN's monetary policy operations in an FFIT setting had been addressed by the Bank[16].Besides, it could be assumed that the transitional period for the formal introduction of FFIT had begun in 2007, when an official announcement was made on the change-over and preparations were set in motion. This means that as at end-2009, three years out of the transitional period had been spent[17].The duration of the outstanding portion of the transitional period should take into account the ongoing global economic crisis, the steps being taken to intensify the reform of the financial system, and the need to be on course in the West African monetary integration arrangements. Partly based on judgement, it is assumed that  three years would be adequate to conclude the transition to FFIT by 2012.If necessary, another one or two years could be added to the transitional period. The period, 2013-2014 would then serve as a buffer. The most critical consideration is to identify the actions that need to be taken to conclude the transition to FFIT successfully. In this regard, three areas should be examined by the CBN, as described below.

## 5.1    Mandate and Responsibility

In an IT regime, a central bank's mandate and its responsibilities towards managing the regime must be clearly spelt out. Although maintenance of price stability as an objective of monetary policy is usually contained in the enabling ***Act*** of a central bank, it is often stated in general terms. The outset of the IT regime provides an opportunity to spell out, in clear terms, what the mandate implies. There are two important issues which need to be addressed by the CBN: the nature of the autonomy granted to it to pursue the mandate, and how to make the Bank accountable to the stakeholders in a transparent way.

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[16] Some of these were the change in the  horizon of policy implementation, significant changes in the institutional structure for monetary policy, fine-tuning of the transmission mechanism of monetary policy, and changes  in the structure of the financial system.
[17]It is significant that the first year of the transition witnessed the promulgation of the ***CBN Act 2007***.

### 5.1.1   Nature ofthe Autonomy

In order to formalize its mandate under the IT regime, the CBN should enter into an understanding with the Federal Government regarding the nature of its autonomy in applying IT as a framework for monetary policy. This is necessary so that it would be clearly shown that the inflation targeting objective of the CBN would not be subservient to any other policy objective. Furthermore, the understanding would make unnecessary the need to amend the Bank's law in order to accommodate its IT orientation.  It would also be useful in anchoring inflation expectations and establishing credibility to enable the general public understand that the CBN would be truly insulated from political pressures in the pursuit of the price stability objective.

There are two types of autonomy the CBN must consider - instrument autonomy and goal autonomy. The minimum, under an IT framework, is instrument autonomy which would allow the CBN to select and apply its instruments for achieving the inflation target established periodically. Fortunately, this is already guaranteed in the *CBN Act, 2007*. Goal autonomy is a common feature of IT in several emerging market economies. This implies that the CBN would be mandated to determine and execute its inflation target, after much consultation with government. However, it appears better for the CBN to allow the Federal Government to determine and announce the inflation target. A variant of this is that after the Federal Government would have selected the inflation target, its announcement would be jointly done by the Federal Government and the CBN. The experiences of many emerging market central banks show that the involvement of government in this way gives the IT regime and the inflation target a high level of credibility as it would tend to strengthen government's commitment to achieving the inflation target and preventing it from setting other policy objectives superior to the inflation objective. However, it is presumed that even if the inflation target is decided and announced by the Federal Government alone, the CBN would have an input into arriving at such a decision.

### 5.1.2   Accountability and Transparency

Experience shows that IT central banks are normally held accountable for their performance in relation to the inflation target. This is the counterpart of the discretion given to a central bank to design and implement its IT framework. Assessment of accountability is based largely on deviations of actual inflation outcomes from the target inflation rate. In line with existing practice, the CBN must outline, in its IT working document, how it would be held accountable to

the major stakeholders, i.e., the Federal Government, the National Assembly, and the general public. The **CBN Act, 2007 (A67)** has spelt out the responsibilities of the CBN to the National Assembly and the President of the Federal Republic of Nigeria. In addition to these, the CBN can enhance its accountability and transparency through several ways, including the following:

- the definition and announcement of the inflation target, the price index on which it is based, and the horizon for its attainment;

- an explanation, in simple terms, of the key monetary policy operations surrounding the IT regime;

- an announcement and explanation of changes in the apex Bank's monetary policy stance;

- an ex-post assessment of the performance of monetary policy;

- regular press releases and conferences after official meetings of the MPC related to monetary policy decisions; and

- the release of regular inflation reports and other special CBN publications.

The issue of accountability and transparency under IT is closely related to CBN's communication strategy which is examined later. It is observed that some of the above actions are already being taken by the CBN. They now have to be formally packaged within the IT working document.

## 5.2    The Decision-making Process

In an IT regime, there must be an effective and efficient institutional structure for taking decisions on monetary policy. Such a structure must reflect the CBN's instrument autonomy, as well as ensure its accountability and transparency. Based on recent experiences of IT central banks, two principles are recommended for adoption by the CBN. The first principle is to ensure a separation of the decision-making process for monetary policy formulation and implementation from the broad supervision of the organization (Heenan, Peter and Roger, 2006, 4-12). The second principle is to ensure the competence of the decision-making committee and its decision-making process.

On the two principles, it is clear that the CBN has moved towards establishing the prevailing international best practice. The CBN operates under the two-tier management structure consisting of a Board of Directors responsible for monitoring and assessing the Bank's performance of its primary mandate, and a separate Monetary Policy Committee (MPC) responsible for the formulation and implementation of monetary policy. This structure appears optimal as the skills needed for the two types of assignments are somewhat different. In particular, a separate MPC ensures that relevant expertise would be brought to bear on the technicalities of monetary policy, while the broad supervision of the Bank would equally benefit from the members of the MPC who double as members of the Board. The CBN's structure is in reality a single decision-making body, but with emphasis on the performance of the two key functions relating to overall supervision, as well as the formulation and implementation of monetary policy. The MPC should submit periodic reports of its meetings and activities to the Board of Directors of the CBN.

On the issues of MPC membership and the decision-making rules, the present CBN's practice also seems to be in line with established practice. The CBN's MPC is composed of the Governor (Chairman), four Deputy Governors, two members of the Board of Directors, three members appointed by the President, and two members appointed by the Governor (FGN, 2007, A69). This composition satisfies the best practice requirements, namely, members are well qualified to discuss monetary policy issues; members being predominantly technical professionals, are likely to be objective; and the size of the MPC (12) is likely to elicit a diversity of views. The two main variants of decision-making rules are seeking a consensus and ensuring an individualistic, vote-based approach. Each one has its own merits and demerits, depending on the environment concerned. The CBN's practice has followed the individualistic vote-based approach whereby decisions are taken by a vote of all those present at a meeting and a simple majority carries the day. In the event of a tie, the Chairman has a second or casting vote. The MPC meets at least four times a year (quarterly). Since this defines a minimum, the MPC could, in practice, meet more often to discuss urgent, unanticipated events. At the start of the IT regime, it may be useful for the MPC to meet more often (monthly or bi-monthly) to closely monitor developments, with the aim of getting used to new practices under the new regime.

**5.3 Technical Aspects of the IT Design**

There are two categories of decisions which constitute the core of implementing the IT framework. The first category relates to the resolution of the technical issues on IT, while the second category deals with some policy decisions that need to be taken to give support to the IT regime. The first is the focus of this sub-section, while the second is taken up in the next sub-section. There are two broad categories of the technical aspects on which proposals are made: preparatory activities and the determination of targets, each of which is now explained in detail.

**5.3.1 Preparatory Activities**

**1. Timing of Shift to IT**

As pointed out earlier, the timing of the adoption of IT by the present IT central banks varied considerably and was ultimately determined by factors unique to each country. However, taking an overview of those factors and the peculiar environment of Nigeria, one can suggest a number of ideas for consideration by the CBN.

To start with, the introduction of the IT framework should be part of the ongoing economic and financial reforms which would entrench a more effective monetary policy at the CBN. It could be seen as a demonstration of the spirit of the **CBN Act, 2007** that would involve, among other things, a stronger monetary authority and financial system. It was argued earlier that the recent downturn in the global economy is not particularly favourable for Nigeria to introduce the IT regime immediately because of the resultant external and domestic shocks which have negatively affected the economy and are still unfolding. However, it appears the global economic downturn might not be as prolonged as earlier thought as positive forecasts of global economic recovery are being made by several international institutions. The CBN should, nevertheless, hold on cautiously for a reasonable period so as to have a better understanding of the global economic outlook.

Another factor which the CBN should take into account in determining the timing of a shift to IT is the trend of inflation. A disinflationary process should be pursued. Between 2004 and 2007, the inflation rate (headline) was relatively under control, coming down from 23.9 per cent in 2003 to an average of 9.2 per cent during the period. However, the inflation rate climbed to 15.1 per cent in 2008. During the first half of 2009, the inflation rate declined

persistently, reaching 12.0 percent by year-end. It does appear that the country has fairly comfortably kept the inflation rate close to the single digit level. Consequently, it may be suggested that the inflation rate should be held at no higher than that level (12.0 per cent) before FFIT is formally introduced.

## 2.    Adequacy of the Economic Database

The experiences of present IT central banks show that it requires a lot of information to design· and implement the framework. It is, indeed, an "information-intensive" approach to monetary policy because of its focus on transparency and the application of a large set of economic variables to guide the monetary policy process(Tetangco Jr. and Tuano-Amandor,2002,76-77).Information is particularly required to make inflation forecasts, monitor the transmission of monetary policy to the inflation objective, and undertake explanations on monetary policy outcomes through the central bank's various publications and interactions with stakeholders. For these reasons, IT central banks have designed statistical frameworks as well as how to realise the goals of such frameworks. Central to the statistical framework is the organizational structure for implementing policies aimed at getting all the relevant information needed to guide the monetary policy process. A central bank normally has a statistical unit (usually a department) which develops a database, in collaboration with the national statistical agency. It also builds partnerships with other stakeholders in government and the private sector. These partnerships attempt to fill any gaps in the nation's statistical system.

The CBN has made significant achievements in the development of an appropriate database for IT. Four of the steps already taken or on-going are worthy of note. First, a Statistics Department was recently established as a distinct unit to handle all monetary policy-related statistical issues of the CBN. Second, the Statistics Department has started to develop a database, with the assistance of technical experts. Third, collaboration with the National Bureau of Statistics (NBS) in the development of the nation's statistical system has been intensified. Partnerships are also being built with other government agencies, such as the Nigerian Customs Service, the Federal Ministry of Agriculture and Rural Development, the Power Holding Company of Nigeria(PHCN), telecommunication companies, the Nigerian National Petroleum Corporation (NNPC), and the Nigerian Stock Exchange (NSE). Fourth, CBN's Statistics Department has introduced the conduct of new surveys and the release of useful publications, such as the business

expectations survey, the report on quarterly GDP, the inflation report, and the monetary survey report.

Notwithstanding these steps, there is need for a comprehensive mobilisation for upgrading the national statistical system within which the CBN would also upgrade its database for monetary policy operations. At the level of the CBN, some quick steps should be taken, including a substantial increase in the funding of database development for the CBN, the retraining and recruitment of competent technical staff to support the Statistics Department's field operations, and initiating a new publication on Monetary Indicators[18].At the national level, there is an urgent need to revamp the NBS to the status of a national priority institution. The NBS has been supported significantly by the CBN and international donors. The Federal Government should demonstrate its commitment towards establishing a statistical system for Nigeria's rapid development. The necessary collaboration with other government agencies should be expedited. Indeed, a revamped NBS should lead such initiative. In their mobilization efforts, the CBN Statistics Department and the NBS should initiate a project aimed at identifying global statistical needs for IT, select those that are not available, and map out an effective strategy for ameliorating the situation.

**3      The Conduct of Monetary Policy Operations**

As in the monetary targeting regime currently in use by the CBN, an IT framework must define, ahead of time, how monetary policy is to be conducted on a daily basis. The broad process in IT is the same as in the monetary targeting regime, but several elements are different. In the IT framework, the ultimate goal of monetary policy is domestic price stability as indicated over a specified horizon by an explicit pre-announced inflation target. How this is determined and in what form other policy goals can be accommodated are discussed later. Under IT, the forecast inflation rate is applied as the intermediate target. The CBN is able to manipulate the tools of monetary policy, namely, open market operations, reserve requirements, and discount window operations to influence the policy rate and attain the policy goal. In order to indicate the stance of monetary policy, the CBN must select an appropriate operating instrument (policy rate) which responds to the tools. Experience shows that FFIT central banks use a short-term interest rate as the operating instrument. With the effective use of the policy tools, including

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[18] This publication would outline, periodically, highlights of major economic and monetary indicators  from which data on various CBN reports are derived.

foreign exchange operations, the selected short-term interest rate is applied to steer the forecast inflation towards the explicit inflation target. In this framework, the choice of the operating instrument (short-term interest rate) is guided by three properties (Mishkin, 2007, 413-415). First, it should be observable and measurable. Second, it must be controllable, and third, it must have a predictable effect on the policy goal. All these issues have to do with the transmission mechanism of monetary policy which is discussed in the next section.

The current monetary policy process of the CBN tallies significantly with the above description, except in a few aspects. The ultimate goal of policy is maintenance of domestic price stability, although there are other policy goals too. What remains is the issue of determining an explicit inflation target, which is discussed later. Similarly, the issue of inflation forecasting is examined later. The tools of monetary policy, such as open market operations, changes in reserve requirements, discount window operations, and foreign exchange interventions have been applied quite successfully by the CBN for nearly two decades. These, however, need to be fine-tuned as the need arises. In November 2006, the CBN took a major step in the choice of a new operating instrument, the monetary policy rate (MPR) which replaced the minimum rediscount rate (MRR) that had been a rather weak operating instrument. The MPR has turned out to be a more refined instrument than the MRR and has been used to influence short-term interest rates in the money market through the management of an interest rate corridor backed by the CBN's standing lending and deposit facilities.

This approach, which is the practice in many industrial and emerging market countries, has a lot of potential to give effective support to the application of the MPR. It has some challenges that are mostly related to the inadequacy of the information base, especially in respect of availability of data on interest rates in the wider economy and the appropriate application of IT to obtain accurate data on liquidity in the system (Olekah,2007). Also, the CBN must perfect its forecasting of the daily liquidity position of the banking system so as to determine the level of excess liquidity. All of this boils down to sustaining an improvement of the payments system and the provision of up-to-date technical infrastructure. It is also important to develop effective strategies for dealing with large inflows of liquidity.

**4      The Transmission Mechanism of Monetary Policy**

In the previous sub-section, we discussed the process of attaining monetary policy under an IT framework in Nigeria, involving the announcement of the inflation target, the use of forecast inflation as the intermediate target, the identification of the most effective tools, and the choice of an operating instrument which is to influence the policy tools. Before this process can function efficiently, the CBN must understand the transmission of its monetary policy operations. Such understanding defines the relationship between changes in the stance of monetary policy and their effects on the operating instrument and the inflation objective. If this transmission mechanism is strong and clearly understood, the changes in monetary instruments for influencing the inflation target would be more optimal. This is a major challenge to the CBN in the movement towards IT.

Several theories, though not mutually exclusive, have been developed to analyse the transmission mechanism of monetary policy in an economy. The dominant mechanism usually depends on the structure and characteristics of that economy. Generally, the effects of monetary policy changes on real activity and prices are thought to manifest through various channels, namely, interest rate, exchange rate, bank credit, balance sheet, financial asset price and expectations channels[19]. The rich literature on this subject suggests that in the industrial countries, the main channel of monetary policy transmission is through short-term interest rate changes which are passed on to households and firms through a virile and competitive financial sector. In the emerging market countries, transition economies and developing countries, the interest rate channel is not as strong as in the industrial countries, but the exchange rate appears strong enough in transmitting the effects of monetary policy changes, especially in small open economies with flexible exchange rate regimes. The interest rate, credit, balance sheet and asset price channels are relatively weak because of underdeveloped financial intermediation and rudimentary capital markets and non-bank financial institutions. The exchange rate channel appears sufficiently strong as it affects both aggregate demand and supply.

The empirical evidence on the transmission mechanism of monetary policy in Nigeria is limited to in-house reviews and preliminary studies by CBN's Research Department. Ajayi (2007) traces the evolution of monetary control

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[19] See studies by various authors, including Horvath and Maino (2006),Poddar, Sab and Khachatryan (2006 ) and Al-Mashat and Billmeir (2007).

strategies in relation to the expected monetary policy transmission mechanism. Under direct monetary control, monetary policy changes worked through changes in interest rate, exchange rate and credit control to influence, positively, changes in output and prices through the credit channel. As indicated in Section 4 of this paper, this did not always work out. Under the indirect monetary control regime, with the use of open market operations as the major tool of monetary policy and base money as the operating target, monetary policy is transmitted through the short-term interest rate or the exchange rate to influence changes in output and prices. An empirical study by the then Research and Statistics Department (cited by Ajayi, 2008) using a Vector Auto Regression (VAR) model on quarterly data (1980 - 2005) showed that the exchange rate channel was strong, while the interest rate and credit channels were weak. The explanations were that the MRR remained constant for a long time, while the bulk of domestic credit went to government. This can only be a preliminary study. The introduction of the corridor for the overnight rate by the CBN may have started to contribute, as shown earlier, to a more active interest rate channel in Nigeria. Meanwhile, the CBN is in the process of finalising a study on the subject, as well as developing a macro-econometric model which is likely to throw more light on this vital aspect of the monetary policy process.

There is, therefore, a need to undertake more investigation and consolidate ideas on this issue asit is an important activity in the transition to an FFIT framework. In brief, the main actions that should engage the attention of the CBN so as to understand the working of the transmission mechanism of monetary policy in Nigeria include, the development of a robust macroeconomic model, improvement in the quality of data rendered by the DMBs, enhancement of competition in the banking system to reduce the spread between lending and deposit rates, and sustained efforts to deepen the financial markets.

## 5    Inflation Forecasting

The contemporary literature on IT agrees that inflation forecasts are the cornerstone of the IT framework. The essence of the IT framework is that because of the long lag of the impact of monetary policy on inflation, there is a need for a forward-looking approach to the policy process. In order to act accurately, a central bank must take decisions on the basis of inflation forecasts and not on past inflation outcomes. Indeed, the inflation forecast functions as the intermediate target. Any difference between the inflation

forecast and the inflation target demands a reaction from the central bank regarding what the monetary policy stance would be. For effective inflation forecasts under IT, a number of steps are needed. First is the need to build a reliable database. The database should consist of various monetary policy indicators, including those on aggregate demand and supply, financial sector developments, inflation expectations, and price indices (Carare et. al., 2002, 31-34).Second, there must be a reliable forecasting framework which makes use of historical and current data to make projections. Several models can be used for such projections which are enhanced by information from private market participants and judgement. These requirements indicate the need for an organizational set-up in the central bank to execute the inflation forecasting framework.

Canales-Kriljenco et al. (2006) compared the assignment of inflation forecasting under IT a production process with various components, such as data management, information gathering, the use of statistical techniques and sound communication strategies. Consequently, a central bank must organize itself for the production of inflation forecasts. Presently, the CBN applies a number of techniques to undertake its inflation forecasts, while its Research Department is currently developing an inflation forecasting model. However, this issue should be addressed in a more holistic manner. In this regard, it is suggested that the CBN constitute an inter-departmental standing committee, under the MPC, for producing inflation forecasts and reports during the transition to an FFIT framework. The core departments to be represented in the team should include Research, Statistics, Monetary Policy, Banking Operations, Governor's Office, Risk Management, Reserve Management, Financial Policy and Regulation, Financial Markets, Trade and Exchange, Finance, and Banking Supervision. The inflation forecasting team would have the basic responsibilities of identifying and assigning the main tasks for producing inflation forecasts, including the building of databases, the development of inflation forecasting models and the collection of information from the financial markets and the private sector. In order to enhance accountability and transparency, communicating inflation forecasts to the general public is recommended under the IT framework. It is our view that disclosing the inflation forecasts to the general public would be helpful to the entire process of IT as it would enhance its understanding of CBN's actions and its credibility to control inflation, as well as helping to improve the quality of the forecasts through public scrutiny.

### 5.3.2 Determination of Targets

**1. Target Price Index**

Having analysed the issues whose resolution would provide an appropriate environment for the operation of IT by the CBN, we can now examine the specific modalities for designing the basic parameters of the IT framework. The first is the selection of the target price index. The target price index is the variable whose rate of change is to be targeted. In general, the target price index should be broad-based and familiar to the public. The options on the target price index are the consumer price index (CPI), the core CPI, the GDP deflator, the wholesale price index, and the producer price index. We quickly deal with the GDP deflator as well as the wholesale and producer price indexes. The GDP deflator has a wide coverage, but is not used in practice because high frequency data on this variable are not readily available and is generally not well-understood by the public. For similar reasons, the wholesale and producer price indexes are not accepted as general price measures.

 Most IT central banks use the headline CPI in their frameworks. It has several characteristics that make it the preferred target price index, including its wide publicity, its use in indexation and high frequency. Its focus is mostly on consumer expenditure and is generally understood by the public. It has a high degree of credibility, largely because it is usually compiled usually by the national statistical agency and is, therefore, not perceived as being manipulated by the monetary authorities. The core CPI is computed by excluding items whose prices are volatile and often beyond the control of the monetary authorities. Examples are food prices, energy prices, indirect taxes and administered prices. The main drawback of the core CPI is the problem in explaining to the public why a large proportion of the typical family budget is excluded from the total CPI. Experience shows that IT central banks have chosen the headline CPI as the official target index and core CPI as an operational guide to policy. The core CPI is useful in inflation forecasts as it is found to be a better predictor of future headline CPI.

Nigeria has made reasonable progress in the compilation of the CPI for the whole nation. The NBS has the mandate to compile and publish the CPI for Nigeria. Over the years, it has collaborated with other national stakeholders, such as the CBN to perform this function. The current CPI is derived from surveys of households in both the urban and rural areas of Nigeria. It is compiled monthly from price data observed in 90 urban areas and 333 rural

enumeration areas. The NBS has revised the CPI format a number of times, based on the **National Consumer Expenditure Surveys** of 1974/75, 1985/86 and 1996/97. The weights from the 1996/97 survey were revalued to May 2003, which is the reference base of the current CPI. Food and Non-Alcoholic beverages have a preponderant weight of 64.4 percent among 12 commodity groups. The NBS computes the headline inflation from the CPI, as well as core inflation measures which exclude farm produce (59% of the CPI) as well as combined farm produce and energy.

Although the compilation of the Nigerian CPI has improved over time, several problems, such as the long period between the base period and the current period, the burden of too much paper work in the field operations, and the lack of education of market respondents persist and are being gradually addressed. For instance, the NBS derived a **National Consumer Survey** from the **Nigerian Living Standards Survey** of 2003/2004 which would make it possible to revise the CPI series using May 2007 as the base year. For the purpose of IT by the CBN, the NBS CPI would be acceptable. The CBN should continue to collaborate with the NBS to maintain an appropriate base year for the CPI and improve the efficiency of the field surveys. The headline CPI should be selected as the official target price index. However, the CBN should monitor the core CPI, based on the exclusion of farm produce. This should be used to guide policy, especially with regard to seasonal factors in the headline CPI which require a lot of judgment in defining the stance of monetary policy.

## 2.      The Target Rate of Inflation

There are two issues to be resolved in relation to the inflation target. One is the numerical value of the target and the other is consideration of the option of targeting the price level. IT central banks have tended to apply the rate of inflation target rather than the price level.  On the numerical value of target inflation, the choice is specific to every country. However, the general practice has been to avoid zero or too low a target rate, as well as an excessively high rate which may lack credibility. An inflation target rate of zero has the possibility of moving the economy into deflation (Bernanke etal. 29-30). A persistent deflation may create serious liquidity problems for the financial system. The practice by most IT central banks is to target a range of 1-3 percent inflation rate.

In line with dominant practice, it is suggested that the CBN choose to target the inflation rate. The important issue is to determine the numerical value of the target, among other things. Earlier on, it was suggested that the authorities should strive to maintain inflation close to single digit level (presumably, at the upper end) before the final transition to FFIT. The record shows that the authorities have, on average, attained this level in the last five years. Assuming that this rate is about 8-10 percent, the immediate objective would be to determine the target rate of inflation within a specified time horizon (discussed next) from 2013. As suggested earlier, the transition period for the shift to IT by the CBN should span 2007-2012. What should the target inflation rate be from 2013? It may be too ambitious to aim at the average of 1-3 percent, which seems to be the international best practice. However, a target inflation rate of 5 per cent appears acceptable, especially as this is a major criterion under the West African Monetary Zone Programme which is to be completed in 2015.

### 3.    The Target Horizon

The time horizon is the period during which the inflation target is to be maintained. More than one horizon can be fixed at any point in time, depending on the desired objective. Considerable judgment is needed to determine the horizon of the inflation target. A target horizon of one year or less appears too short, given the common experience that monetary policy may not be effective within that short horizon. A target horizon of more than four years appears unrealistic because of the low credibility it would attract. Usually, however, the target horizon becomes indefinite when the long-run inflation objective has been met. With an inflation target of 5percent, the target horizon should span the three - year period, 2013-2015.

### 4.    The Target Point and/or Range

The choice for the inflation target is between a single target point and a range, with a mid-point. There are relatively difficult options in considering a range. A narrow range leaves a central bank little flexibility, especially when shocks occur, while a wide range may convey the impression that the central bank is not totally committed to an inflation target. The selection of a point target would appear to demonstrate significant commitment to the inflation target. Evidence shows that most IT central banks have specified a range for their target and invariably specify the mid-point of the range as the reference target. It is suggested that the CBN opt for a target range because it gives room at the beginning for errors in inflation forecasts arising from an unclear

transmission mechanism and the incidence of shocks. The target range also provides the flexibility to manage short-run output fluctuations with some inflation volatility. The use of a range with a mid-point has led to the proposal (Heenan et.al.,2006,20) to define a point target as a medium-term objective, while using a range centred on the point target to define an intermediate target over a shorter horizon. This would provide an anchor for inflationary expectations in the long run, while allowing the central bank the flexibility to deal with uncertainty in the short run.

### 5.3.3    Exemptions from the Inflation Target

Given the high degree of uncertainty surrounding the requirements and implementation of an IT framework, there may be a compelling need to specify ahead of time the conditions under which deviations from the specified inflation target may occur. A central bank would also indicate how it might react to any deviations. The CBN should have written conditions under which its inflation target might be breached. The Nigerian economy is relatively open and subject to both internal and external shocks. Changes in petroleum product prices have been known to result in high inflation in the country. Similarly, the volatility of food prices and the dominant weight of food in the CPI sometimes result in high inflation. All these factors may lead to unavoidable misses of the specified inflation target. Such considerations would allow the CBN to educate the public ahead of time. However, other than this communication with the public, the CBN should not seek for exemptions from the inflation target because seeking such exemptions may negatively affect the credibility of the monetary policy regime.

### 5.4    Decisions on Other Policy Goals

It is clearly understood that under an IT regime, the achievement of the specified inflation target is the overriding goal of monetary policy. Other policy goals can, therefore, only be accommodated under the regime only if they are consistent with the achievement of the inflation target. A typical illustration of such consistency is when all factors which impinge on inflation must be taken into account when making inflation forecasts. Apart from such situations, the IT regime cannot be operated with any other explicit policy target. However, many central bank laws mention, apart from the achievement of price stability, several other objectives of the monetary authorities. For instance, under the *CBN Act, 2007*, the CBN, apart from ensuring monetary and price stability, is expected to maintain external reserves to safeguard the international value of the legal tender currency, as

well as promote a sound financial system. These two functions may connote the achievement of exchange rate and financial stability objectives. The CBN is also expected to carry out some developmental functions as well as operate within the prevailing fiscal policy environment. In what follows, we analyse these issues in the context of the primary goal of inflation targeting.

### 5.4. 1   The Economic Development and Growth Mandate

The literature accepts that the goal of full employment, or the stabilisation of unemployment and real output is not necessarily inconsistent with the IT framework. But, it is held that the best contribution monetary policy can make to growth and employment is the attainment of the inflation target. The consideration of the goal of output/employment stabilisation by a central bank should be secondary; the focus should be on whether a response to the output gap affects the inflation forecast. For situations of disinflation, the IT process should act gradually to avoid short-run cost in lost output and employment. Also, the process should set a long-run inflation objective alongside the short-run inflation target which should converge to the long-run inflation goal. In this way, the real costs of reducing inflation can be moderated, while output fluctuations can also be minimized (Bernanke et al., 1999, 291).

The **CBN Act, 2007** allows the CBN to undertake developmental activities at its own discretion. From its inception, the CBN has focused on improvement in access to finance in the economy, through the establishment of special instruments and programmes. Notable among these are export financing, agricultural credit support, finance of small and medium-scale enterprises, and rural financing. The involvement of the CBN in these activities has gone a long way to support domestic output growth and there is no evidence that it is placing undue emphasis on them. However, as the CBN is entering a period of more intensive policy formulation and implementation, the involvement of the CBN in these activities could be a distraction for top management staff. One option is that the activities could be transferred to a special agency of government in the long term.

### 5.4.2   The Fiscal Policy

Experience suggests that a sound fiscal policy is required for the success of monetary policy and more so under an IT regime. Fiscal policy is one of the factors for analysing the outlook for inflation. It is important that the prevailing and future fiscal position is supportive of the inflation target. Thus, one of the

concerns in IT is the negative effect of fiscal dominance when monetary policy is unduly concerned about the financial needs of government. For instance, Khan (2003, 11) cites the situation in which government relies persistently on revenue from money creation, and on regular floating of its securities in weak domestic financial markets. The use of an operating instrument, such as the interest rate, can be hindered as monetary policy is likely to weigh the repercussions on the fiscal position.

So, how does the fiscal situation in Nigeria augur well for the adoption of IT as a framework for monetary policy? In the decades of the 1980s and 1990s, in particular, the fiscal operations of the Federal Government dominated monetary policy operations, resulting in relatively high rates of inflation. During the period under review, the fiscal operations of government resulted in large fiscal deficits financed mainly through Central Bank credit. A series of fiscal reforms since the early 2000s have significantly changed the fiscal environment. Examples are the design of the oil price rule and the promulgation of the *Fiscal Responsibility Act*, as well as the institutionalisation of the coordination of fiscal and monetary policies, through the establishment of the Fiscal and Monetary Policy Coordinating Committee and the Fiscal Liquidity Assessment Committee. These actions have resulted in the virtual elimination of lending to government by the CBN.

Notwithstanding the present relatively congenial fiscal environment, the monetary policy of the CBN under IT would face some underlying threats from the prevailing fiscal environment. One problem arises from the legalised granting of temporary advances to government by the CBN (FGN, 2007, A79-A80). Under the provision, the CBN may grant temporary advances to the Federal Government to cushion temporary deficiencies of budget revenue, subject to a limit of 5 percent of the previous year's actual revenue. Furthermore, government is expected to repay such loans before the end of the fiscal year, failing which the CBN would refuse further advances in practice. It is recommended that the CBN should work towards eliminating the granting of any form of credit to the Federal Government. Another problem posed to monetary policy by fiscal policy is the inefficiency of expenditures at all levels of government. The three tiers of government should spend oil revenue allocations efficiently by providing much needed infrastructure and other services which would impact positively on the nation's productive capacity. The CBN can overcome these problems, to a large extent, through two steps. First, the CBN should use the opportunity of the

Federal Government's announcement of the inflation target, on the eve of adopting IT, to emphasize the need for its full commitment to the new monetary regime. Second, the CBN, in its capacity as economic and financial adviser to the Federal Government should continue to advocate an improved fiscal policy regime in the country. The features of such a regime would be the absence of fiscal dominance, the rationalization of public sector borrowing requirements, and a diversified revenue base at all levels of government.

### 5.4.3    The Exchange Rate Policy

The main issue with regard to the exchange rate policy under IT is the absence of any commitment to target the nominal exchange rate. The primary goal is the inflation target. At one extreme, the choice of a fixed exchange rate regime implies a subordination of monetary policy to the exchange rate target. This situation can be relaxed if the exchange rate system is flexible, such as a crawling peg or target zone (Masson et. al., 1997, 8-9). Under this situation, IT could coexist with a nominal, non-fixed exchange rate target, provided, however, that the inflation target always has the priority. The intervention of a central bank in support of the exchange rate, under such circumstances, would be aimed at smoothening the effects of temporary shocks on inflation (Khan, 2003, 10-11). This is particularly important for open economies in which the pass-through from exchange rate to inflation is relatively high.

The active interventions of the CBN in the foreign exchange market through various strategies such as, in recent years, the Retail Dutch Auction System and the Wholesale Dutch Auction System, could create the impression that it could experience a conflict with regard to inflation targeting and an exchange rate objective. However, its primary aim has been to support price stability through such interventions. This can be accommodated because of the high openness of the Nigerian economy which leads to a high pass-through from the exchange rate to inflation. Thus, CBN's role in the foreign exchange market to enhance exchange rate stability should continue to be used as a secondary objective under an IT framework.

### 5.4.4    Financial Stability

There are two aspects that are mentioned in the literature with regard to financial stability and inflation targeting. One concerns the health of the financial system and the other deals with the functioning of the financial

markets. When the financial system is stable, it is less vulnerable to crisis and boosts the credibility of monetary policy, thereby enhancing the anchoring of inflation expectations to the inflation target. Efficient financial markets facilitate the formulation of monetary policy under IT by ensuring that asset price movements provide the monetary authorities with information on macroeconomic conditions and market expectations. Such efficiency also supports the effective execution of monetary and foreign exchange operations which are vital in the operation of the IT regime.

Nigeria has made appreciable advances in the development of its financial system and markets. However, the financial system and markets remain fragile and vulnerable to crisis. The recent bailouts of some Nigerian banks that had been considered solid could generate inflationary pressures. The fragility of the financial system and markets could hamper the use of the operating instrument (short-term interest rates) if the authorities find it difficult to adjust interest rates because of considerations of the soundness of some institutions. The CBN is, therefore, obliged to significantly improve the stability of the financial system and markets during the transition to IT. This explains why the CBN cannot adopt a 'big-bang approach' to the adoption of IT. During the transition period, the CBN must resolve the problem of insolvent financial institutions and adopt viable supervisory practices, in line with international guidelines. The implementation of ***Financial System Strategy 2020 (FSS 2020)*** would go a long way to establish appropriate infrastructure for the support of IT regime. However, it may be necessary to prioritise some aspects of the initiative to facilitate the adoption of IT in the medium term.

### 5.4.5    The Monetary Integration Agenda

Another policy issue that the CBN needs to take into account is the plan to form a monetary union in West Africa (the Economic Community of West African States - ECOWAS) in the future. It is to be executed in two stages. The West African Monetary Zone (WAMZ) programme is to establish a monetary union among five member countries (with addition of two prospective members). The second stage is to merge WAMZ with the existing monetary union of the French-speaking countries (the West African Economic and Monetary Union -WAEMU / UEMOA) to form a unified monetary union in ECOWAS. The ultimate goal is to create a single currency in the sub-region, under a unified monetary system.

The members of WAMZ, to which Nigeria belongs, would be expected to comply with four primary and six secondary criteria to qualify for membership of the union. The primary criteria are the reduction of inflation below 5 percent, the reduction of fiscal deficit (excluding grants) to 4 percent of GDP, a limit for central bank refinancing of budget deficit of 10 percent of the previous year's tax revenue, and maintenance of external reserves to support six months' imports. Nigeria should continue to support the monetary union initiatives in ECOWAS as they are consistent with the initial conditions for adopting IT. Earlier, we had, indeed, suggested that because of this programme, CBN's long-run inflation objective should be around 5 percent. The latest developments on the programme are the extension of completion of the WAMZ programme to 2015 and the sub-regional one to 2020. It is noteworthy that Ghana, which belongs to the WAMZ programme, has announced its formal adoption of IT as a framework for monetary policy.

### 5.5    The Management of Communication

The experiences of present IT central banks show that communication with the general public is a key element of an IT framework. Many IT central banks have set up detailed communication systems to undertake the responsibility of communicating monetary policy issues to all stakeholders. This has been rationalised by the fact that the instrument independence of a central bank requires a high standard of public accountability and transparency (Heenan et. al., 2006, 27-28), while its credibility is expected to enhance the efficiency of monetary policy. The CBN should, therefore, outline a communication strategy during its transition to an IT framework. Presently, the strongest outfit for CBN's communication is in the Corporate Communications Office, under the Governor's surveillance. It is suggested that such outfit should be reorganised to handle CBN's communication activities under an IT framework.

There are four tasks in designing CBN's communication strategy for implementing an IT framework. The first task is to identify the major stakeholders under the new IT framework. There are at least six important stakeholders, consisting of the general public, the media, the three levels of government, the legislatures, the financial markets, and academia. The communication system should outline the objectives of communicating with each category of stakeholder and the best ways of undertaking such communication. The second task is to outline the day-to-day management of the communication strategy. Earlier on, we had suggested that this should be handled by the Corporate Affairs Office of the CBN. The third task is to

indicate the procedure and modalities for explaining policy decisions and monetary policy performance. This has to do with the preparation and release of regular and special reports on the monetary policy process. The fourth task is to identify other communication activities which are not immediately related to the monetary policy process, but are of a general nature. These include speeches by senior CBN's officials, proceedings of seminars and conferences, traditional publications of the CBN, and the CBN's website.

# 6. SUMMARY, CONCLUSION AND POLICY RECOMMENDATIONS

The last segment of this paper provides an overview of the various elements of the discourse undertaken in the paper. It includes a summary of the major findings, a conclusion on the central focus of the paper, and policy recommendations for ensuring an effective transition to a full-fledged inflation targeting monetary policy framework by the CBN.

This paper set out to outline proposals that would enable the CBN transit to FFIT for its monetary policy operations. These involve, among other things, proffering solutions to the technical, administrative and other practical problems for effective application of IT as a framework for monetary policy. Towards this goal, the paper provided a conceptual framework whose main aim is to identify the fundamental differences between IT and other monetary policy frameworks, such as the exchange rate peg and monetary targeting. The use of the exchange rate peg reduces the ability of the domestic central bank to use monetary policy for other objectives, such as short-run domestic stabilization. In monetary targeting, there is a powerful assumption of a strong and predictable relationship between the targeted monetary aggregate and the policy goal variable. Over the years, this assumption has not been maintained largely because of the strong process of economic and financial liberalisation in the global environment. IT uses a forecast inflation rate to achieve the inflation target and does not require the condition of a stable relationship between money stock and inflation. The monetary authorities have the discretion to use all available information to undertake monetary policy changes.

The paper undertook a comprehensive overview of the experiences of IT central banks from 1990 to date. The IT-practising countries have been classified into three categories on the basis of the level of the clarity and credibility of monetary policy nominal anchors. The FFIT central banks have the highest level of credibility and are committed to achieving their inflation targets and formalising the commitment in the form of a transparent monetary policy framework that pins the accountability of the central bank to the inflation target. The EIT central banks also have a lot of credibility and achieve low and stable inflation, but without full transparency and accountability to their inflation targets. The ITL central banks rank much below the FFIT and EIT central banks in terms of the credibility of monetary policy.

Although they announce a price stability objective, the pursuit of a low and stable inflation is not the overriding objective of monetary policy. FFIT is the model for IT and, by 2008, the number of FFIT central banks stood at 29, made up of 14 industrial countries and 15 emerging market and low income countries. The IT central banks, from 1990 to date, have taken a number of steps to actualise their IT regimes, including decisions on the most appropriate timing of adoption, the determination of inflation parameters, and the establishment of relevant institutions. Several studies on the activities of IT central banks indicate that the regime has been significantly successful. A few studies have, however, found evidence to the contrary. The lessons that prospective IT central banks should learn from the empirical evidence include the need to have both a *de jure* and a *de facto* mandate to pursue domestic price stability as the primary goal of monetary policy, the avoidance of fiscal dominance, and ensuring a well-developed and stable financial system.

The paper reviewed the evolution of monetary policy frameworks in Nigeria. On the whole, the achievement of low and stable inflation has been the primary responsibility of the CBN, although it is also required to ensure exchange rate stability and support the process of economic growth and development. Since its inception in 1959, the CBN has applied a number of monetary policy frameworks, such as the exchange rate peg and monetary targeting. With the rapid growth in domestic liquidity, which has posed a serious threat to price stability, monetary targeting has replaced the exchange rate peg framework since 1974.The monetary targeting regime applied direct monetary control which has been largely unsuccessful. The indirect monetary control framework came into force in 1993 and has been fine-tuned several times. For instance, the MRR was replaced in 2006 by the MPR because the MRR had been largely ineffective as the nominal anchor for CBN's policy rate. The MPR was targeted to influence short-term overnight interest rates in the money market. Another change effected by the CBN was in 2002 when it introduced a medium-term monetary policy horizon to replace the annual budget cycle of the Federal Government. Furthermore, some institutional changes were made through the **CBN Act, 2007** which conferred on the Bank a good measure of instrument independence. Under the **CBN Act, 2007**, the MPC, supported by other technical bodies, has steered the monetary policy operations of the CBN. By and large, monetary policy outcomes in the last ten years have fallen short of set targets. However, since 2006, interest rates have moved downwards, as expected, and stabilized,

while the exchange rate has appreciated and also stabilized. Inflation has gone down from the peak of 2002/2003,but is yet to stabilise appreciably.

A major policy consideration today is the need for the CBN to move towards the IT framework. There are problems with the present monetary targeting regime, including the weak relationship between inflation and the intermediate monetary variable and an unstable demand for money – all of which makes the transmission mechanism of monetary policy rather unclear. However, in the aftermath of the global financial crisis, a move to an IT regime should be carefully planned. Nigeria is already in the midst of a transition to FFIT, having significantly met some of the necessary requirements for introducing an IT framework. These include instrument independence for the CBN, an ongoing programme for the development of technical infrastructure, substantial deregulation of domestic prices, and an enhanced reform of the financial system. From the experiences of IT central banks, further improvements towards transiting to IT should be packaged within a programme for the design and an implementation of an IT framework. Thus, the CBN should sustain the pace of economic and financial reforms which would enable it transit to FFIT over a specified period. It is suggested that the transition period should extend from 2007 to 2012 and the FFIT framework would then take-off officially from 2013.

Detailed policy recommendations for the transition to an IT regime are contained in relevant sub-sections of Section 5 of the paper. The proposals are presented in outline form in Table 4 where the CBN's transition to FFIT framework is conceived as a schedule of activities. Ten (10) specific activities have been identified. Each activity is guided by five characteristics depicted in Columns (ii) to (vi).The definition and statement of objectives are indicated in Columns (ii) and (iii), respectively. Column (iv) outlines the implementation modalities for the activity, while Column (v) states what has been achieved so far. Column (vi) shows the remaining steps yet to be taken towards completing the activity. The activity schedule would also serve as a template for producing regular (e.g. quarterly) reports for briefing the MPC and Management of the CBN. The general administration of the transition programme would be under the MPC, supported by the Inter-Departmental Standing Committee on IT and the various Action Teams.

## TEXT TABLES

### Table 1: Features of Inflation Targeting Countries

| Country | IT Adoption Date (1) | Target Horizon (2) | Inflation Measure (3) | Point Target (%) (4) | Target Range (%) (5) |
|---|---|---|---|---|---|
| New Zealand | 1990 Q1 | Medium-term/Indefinite | HCPI | None | 1-3 |
| Canada | 1991 M2 | Medium-term | HCPI | 2.0 | 1-3 |
| United Kingdom | 1992 M10 | Indefinite | HCPI | 2.5/2.0 | +/-1.0 |
| Sweden | 1993 M1 | Indefinite | HCPI | 2.0 | +/-1.0 |
| Finland | 1993 M2 | Indefinite | HCPI | 2.0 | |
| Australia | 1993 M4 | Medium-term | HCPI | None | 2-3 |
| Spain | 1995 M1 | Medium-term | HCPI | None | 0-3 |
| Czech Republic | 1997 M12 | Annual/Multi-year | HCPI | 4.5/2.0 | +/-1.0 |
| Israel | 1997 M6 | Annual/Indefinite | HCPI | None | 1-3 |
| Poland | 1998 M10 | Medium-term/indefinite | HCPI | 4.0/3.0/2.5 | +/-1.0 |
| Brazil | 1999 M6 | Annual | HCPI | 4.0/3.75 | +/-2.5 |
| Chile | 1999 M9 | Annual/Indefinite | H/C CPI | 3.0 | 2-4 |
| Colombia | 1999 M9 | Annual/Long-term | HCPI | 5.5/3.0 | 5-6 |
| South Africa | 2000 M2 | Annual/Medium-term | CPI* | None | 3-6 |
| Thailand | 2000 M5 | Indefinite | CCPI | None | 0-3.5 |
| Korea | 2001 M1 | Annual/Medium-term | HCPI | | 2.5-3.5 |
| Mexico | 2001 M1 | Annual/Long-term | HCPI | 3.0 | +/-1.0 |
| Iceland | 2001 M3 | Multi-year/Indefinite | HCPI | 2.5 | +/-1.5 |
| Norway | 2001 M3 | Indefinite | CCPI | 2.5 | |
| Hungary | 2001 M6 | Annual/Long-term | HCPI | 3.5/2.0 | +/-1.0 |
| Peru | 2002 M1 | Indefinite | HCPI | 2.5 | +/-1.0 |
| Philippines | 2002 M1 | Annual | HCPI | None | 4-5 |
| Guatemala | 2005 M1 | Annual | HCPI | | |
| Slovakia | 2005 M1 | Three years | HCPI | | |
| Indonesia | 2007 M7 | Medium-term | HCPI | | |
| Romania | 2005 M8 | Two years | HCPI | | |
| Turkey | 2006 M1 | Three years | HCPI | | |
| Serbia | 2006 M9 | | HCPI | | |
| Ghana | 2007 M5 | | HCPI | | |

Notes: HCPI = Headline CPI; C CPI = Core CPI; M1 - M12 = January -December;* Excludes mortgage interest ;Q1=First Quarter

Sources: Adapted from Roger and Stone (2005, Page 8); Heenan, Peter and Roger, 2006, Page 19; Roger, 2009, Page 6.

**Table 2:Monetary Policy Targets and Outcomes: 2000-2009 (Percent)**

| Variables | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009* |
|---|---|---|---|---|---|---|---|---|---|---|
| **M2** | | | | | | | | | | |
| Actual | **48.07** | **27.00** | **21.5.** | **24.1** | **14.02** | **24.35** | **43.09** | **44.24** | **57.78** | **17.1** |
| Target | 14.60 | 12.20 | 15.3 | 15.0 | 16.00 | 15.00 | 27.00 | 24.10 | 35.00 | 20.80 |
| **M1** | | | | | | | | | | |
| Actual | 62.24 | 28.06 | 15.8 | 29.5 | 8.58 | 29.66 | 32.18 | 36.64 | 55.87 | 2.3 |
| Target | 9.80 | 4.30 | 12.4 | 13.8 | 13.40 | 11.40 | | | | 32.2 |
| **Net Domestic Credit** | | | | | | | | | | |
| Actual | -23.10 | 79.90 | 56.5 | 35.7 | 11.99 | 14.51 | -69.13 | 276.40 | 84.20 | 59.0 |
| Target | 27.80 | 15.80 | 57.9 | 25.7 | 22.50 | 22.50 | -72.30 | 29.90 | 19.84 | 86.97 |
| **Credit to Government** | | | | | | | | | | |
| Actual | -162.30 | 95.20 | 63.2 | 58.4 | -17.94 | -36.99 | -732.81 | -22.30 | -31.21 | 26.6 |
| Target | 37.80 | 2.60 | 96.6 | -150. | 29.90 | -10.90 | - | - | -54.57 | 21.90 |
| **Credit to Private Sector** | | | | | | | | | | |
| Actual | 30.90 | 43.50 | 13.4 | 26.8 | 26.61 | 30.82 | 32.06 | 90.76 | 59.38 | 26.0 |
| Target | 21.90 | 22.80 | 34.9 | 32.3 | 22.00 | 22.00 | 30.00 | 30.00 | 36.10 | 44.99 |
| **Real GDP** | | | | | | | | | | |
| Actual | 4.89 | 4.72 | 4.63 | 9.57 | 6.58 | 6.51 | 6.03 | 6.45 | 6.41 | 6.9 |
| Target | 3.00 | 5.00 | 5.00 | 5.00 | 5.00 | 5.00 | 7.00 | 10.00 | 10.00 | 8.90 |
| **Inflation** | | | | | | | | | | |
| Actual | 6.90 | 16.50 | 12.1 | 23.7 | 10.01 | 11.60 | 8.50 | 6.60 | 15.10 | 12.0 |
| Target | 9.00 | 7.00 | 9.30 | 9.00 | 10.00 | 10.00 | 9.00 | 9.00 | 9.00 | 8.20 |

Source: Central Bank of Nigeria **Statistical Bulletin** and **Annual Reports** for the Years indicated

* Provisional

### Table 3: Other Selected Macroeconomic Indicators (2000-2009)

| Macroeconomic Variable | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009* |
|---|---|---|---|---|---|---|---|---|---|---|
| **MRR/MPR(%)** | 14.00 | 20.50 | 16.50 | 15.00 | 15.00 | 13.00 | 10.00 | 9.50 | 9.75 | 6.00 |
| **Interest Rates: Period Average (%)** | | | | | | | | | | |
| Inter- Bank Call Rate | 13.96 | 25.12 | 22.07 | 17.18 | 13.50 | 7.96 | 7.38 | 8.15 | 11.86 | 4.68 |
| Savings | 5.04 | 4.91 | 4.29 | 4.12 | 4.18 | 3.83 | 3.13 | 3.55 | 2.84 | 3.40 |
| Maximum Lending Rate | 26.76 | 28.45 | 30.13 | 22.94 | 20.85 | 19.49 | 18.41 | 18.36 | 18.49 | 18.10 |
| **Exchange Rates: Period Average (N/US$ 1.00)** | | | | | | | | | | |
| Official | 102.11 | 111.94 | 120.97 | 129.36 | 133.50 | 132.15 | 128.65 | 125.83 | 118.57 | 148.90 |
| Inter-Bank | 102.17 | 111.95 | 122.85 | 131.26 | 134.67 | 133.00 | 128.67 | 125.72 | 119.00 | 150.41 |
| BDC | 111.83 | 132.83 | 137.79 | 141.99 | 140.85 | 142.56 | 137.10 | 127.41 | 120.71 | 161.64 |
| | | | | | | | | | | |
| **External Reserves: End-Period (US$ Biillion0** | 9.39 | 10.27 | 7.68 | 7.47 | 16.96 | 28.28 | 42.30 | 51.33 | 53.00 | 42.38 |
| **FOREX Flows (US$ Billion)** | | | | | | | | | | |
| Inflow | 18.07 | 19.34 | 15.01 | 23.38 | 35.40 | 51.24 | 58.72 | 74.05 | 106.80 | 67.26 |
| Outflow | 12.90 | 15.69 | 13.76 | 17.90 | 15.85 | 24.84 | 24.72 | 26.04 | 47.17 | 36.51 |
| Net Flow | 5.17 | 3.65 | 1.26 | 5.48 | 19.55 | 26.39 | 34.00 | 48.01 | 59.63 | 30.74 |
| **FOREX Market Operations (US$' Billion** | | | | | | | | | | |
| Demand | 7.26 | 9.87 | 8.96 | 14..3 | 10.73 | 11.82 | 11.45 | 17.01 | 31.73 | 42.73 |
| Sales | 7.26 | 10.04 | 7.59 | 9.38 | 9.46 | 10.19 | 12.60 | 16.07 | 21.49 | 27.53 |
| **FGN Finances (N' Billion) 2009 Figures are as at Aug -09** | | | | | | | | | | |
| Retained Revenue | 597.28 | 796.98 | 716.75 | 1051.20 | 1331.57 | 1758.28 | 1937.14 | 2333.76 | 3154.70 | 2,646.9. |
| Total Expenditure | 701.06 | 1018.03 | 1018.06 | 1242.80 | 1504.17 | 1919.71 | 2037.96 | 2450.93 | 3201.75 | 3,456.9 |
| Fiscal Balance | 103.78 | -221.05 | -301.40 | -191.60 | -172.60 | -161.43 | -100.82 | -117.17 | -47.38 | -810.0 |

\* Provisional
Source : Central Bank of Nigeria

| Table 4: Activity Schedule Towards CBN's FFIT Monetary Policy Framework | | | | | |
|---|---|---|---|---|---|
| **Activity (i)** | **Definition (ii)** | **Objectives (iii)** | **Implementation Modalities (iv)** | **Progress So Far (v)** | **Remaining Issues (vi)** |
| **I: CBN'S MANDATE AND RESPONSIBILITY** | | | | | |
| **1.Preparation of a Working Document on the FFIT Framework** | Outlining the main elements of the FFIT framework | To represent an agreement between the Federal Government and CBN on FFIT | A team of CBN technical officials (MPTC) to prepare a document for approval by the MPC | No action has been taken on this activity | Most critical step is to set up a team to draft the document, drawing from highlights on Activities 2-10 below |
| **2. Nature of CBN's Autonomy** | Determining CBN's autonomy-instrument or goal autonomy or both | To ensure that CBN's monetary policy objective is not subservient to other policy objectives | CBN's legal team to review the nature of autonomy outlined in ***CBN Act, 2007*** | CBN's instrument autonomy has been guaranteed under the ***CBN Act,2007*** | Determine who is to select the inflation target to be implemented by the CBN. The Federal Government is proposed to select inflation target. |
| **3. Accountability and Transparency of the CBN** | Determine how the CBN can be held responsible for its monetary policy actions. | To ensure that CBN is accountable to stakeholders | CBN's legal team to determine adequacy of CBN's responsibilities to stakeholders | Responsibilities of CBN already outlined in ***CBN Act, 2007*** | Finalise a document on this issue as early as possible |
| **II : DECISION-MAKING PROCESS OF CBN** | | | | | |
| **4. Institutional Structure** | Design an optimal structure for taking decisions on monetary policy matters | Ensure that the structure is in tune with CBN's instrument autonomy | Separation of decision-making process for monetary policy formulation and implementation from the general supervision of the CBN, and ensuring the competence of the MPC | Activity virtually completed with the establishment of a two-tier management structure and guiding rules for the MPC | Continuous monitoring of the system in place to identify any weaknesses |
| **III :  TECHNICAL ASPECTS OF IT DESIGN** | | | | | |
| **5. Timing of Shift to FFIT** | Determine an appropriate time to move into FFIT regime | Ensure existence of relative price stability at point of entry into FFIT | MPTC to monitor global financial crises and inflation trends and report regularly to MPC | Activity pursued to 2009 | Activity to be pursued from 2010 to 2012 |
| **6. Establishment of Economic Database** | Establish an effective economy-wide database | To support effective monetary policy | Set up a team headed by Director, Statistics Department to | Statistics Department has initiated development of | Initiate a more comprehensive mobilisation to upgrade national |

| | | | | |
|---|---|---|---|---|
| | | operations | assign functions, monitor implementation and forward regular reports to MPC | a database with support of technical experts and partnerships with institutions outside the CBN. | statistical system. Statistical Team should initiate a project identifying global statistical needs for FFIT |
| **7. Fine-tuning of the Monetary Policy Process.** | Provide adequate documentation for conduct of monetary policy operations, accurate definition of monetary policy transmission mechanism and establish an appropriate model for inflation forecasts. | To ensure adequate preparation for take-off of monetary policy operations. | Set up a team made up of Research and Monetary Policy Dept. staff to prepare appropriate document on these aspects and report to MPC regularly | Some progress already made but activity is still at a minimal level. | More concrete work needs to be undertaken. |
| **8. Determination of Essential Targets for FFIT** | Establish various targets for implementation of FFIT | Establishment of necessary conditions for take-off of technical aspects of FFIT | Set up a team made up of Research and Monetary Policy Departments to prepare a document on these aspects and report regularly to MPC | Scattered outputs at a minimal level as these are largely dependent on having an effective database | Effective mobilisation should be initiated |
| **IV : DECISIONS ON OTHER POLICY GOALS** | | | | | |
| **9. Decisions on Other Policy Goals** | Outline official positions on other policy goals | To prevent these from conflicting with the overriding price stability goal | Set up a team made up of Research and Monetary Policy Dept. staff to prepare a document on these aspects and report regularly to MPC | Output at a low and uncoordinated level | More concrete work needs to be undertaken |
| **V :** MANAGEMENT OF COMMUNICATION BY THE CBN | | | | | |
| **10.Communication Strategy** | Outlining modalities of communication with stakeholders | To support CBN's accountability, transparency and overall credibility of the FFIT framework | Set up a team made up of staff of Governor's Office, Research and Monetary Policy Depts to prepare a document on the strategy of CBN's communication with stakeholders | A lot is being done but needs to be coordinated and implemented systematically | A fresh mobilisation needs to take place. |

# FIGURES

### Figure 1: Inflation: Headline, Core and Food Price (%)
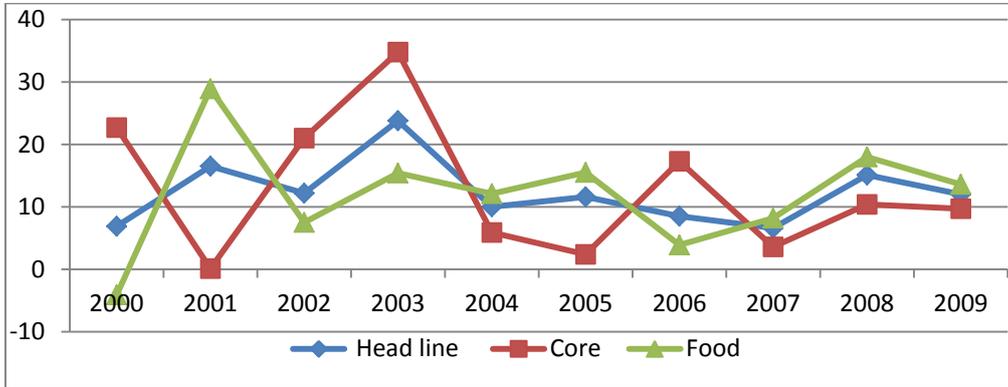


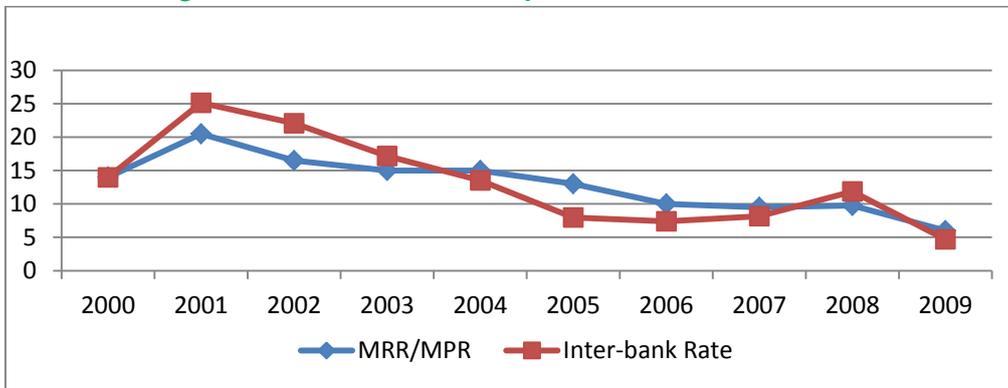### Figure 2: Interest Rates: Policy Rate and Inter-Bank Rate



### Figure 3: Interest Rates: Savings and Maximum Lending
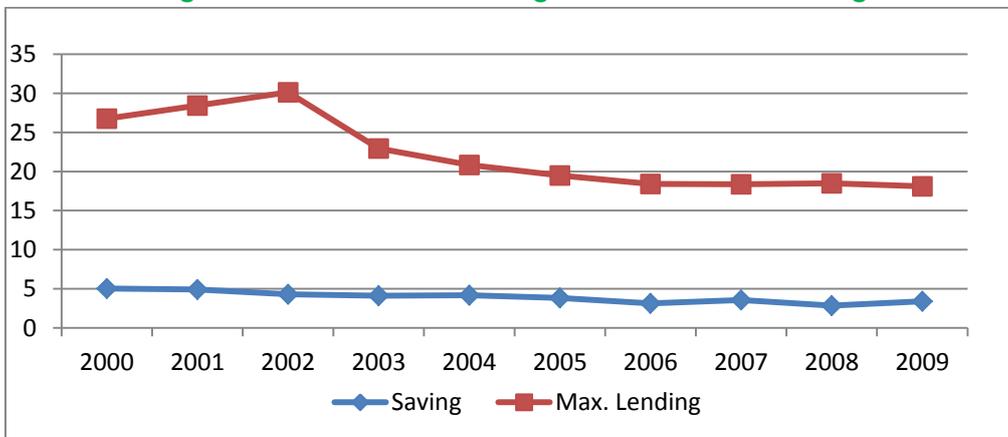
**Figure 4: Exchange Rate Movement**
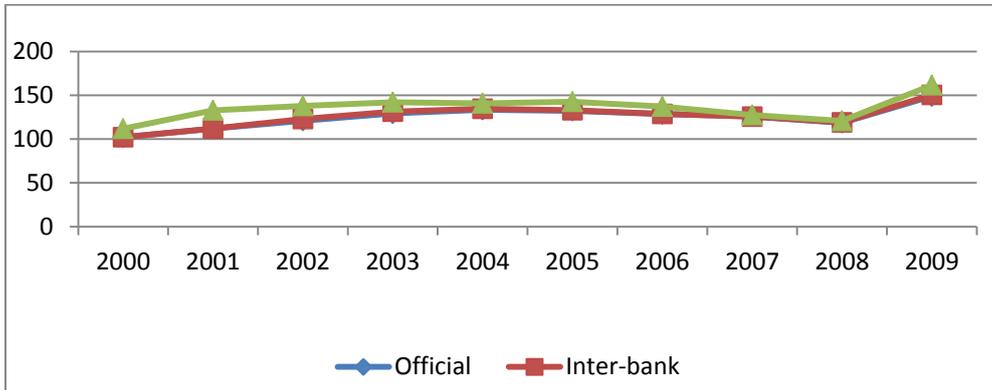
# APPENDIX TABLES

## Table A1 : Summary of IT Frameworks
### Institutional Framework

| | |
|---|---|
| Central Bank legal framework | Instrument independence and currency or price stability is a central bank objective in all cases. Central Bank financing of government deficit is limited or prohibited in all emerging market countries. |
| Design of the inflation target Announcement of target | Announced by government or jointly by government and central bank, unless the central bank has an explicit mandate for price stability as the primary objective. |
| Target horizon | Indefinite for countries at longer-run inflation rate and annual for countries in disinflation. |
| Price index | Consumer price index for most emerging market countries and core inflation for industrial countries. |
| Formal escape clauses | Only used by several countries. |
| Point target or target range | Target range preferred by most countries given uncertainties associated with hitting targets. Point targets have been adopted in some cases to focus inflation expectations. |
| Accountability and transparency | |

Press releases of policy changes, regular inflation outlook reports, active dialogue with private sector, and in some cases, publication of inflation forecasting models.

**Operational Issues: Conduct of Monetary Policy**

| | |
|---|---|
| Inflation forecasting | Based on the indicator variables, quantitative economic models, discussions with market participants, and, especially for emerging market countries, qualitative judgement. Emerging market countries with higher rates of inflation have channels characterized by downward price stickiness and rapid |
| Policy transmission channels | exchange rate pass-through. |
| Policy Implementation | All countries use market-based instruments to target a short-term interest rate. Changes in official interest rates reflect deviations of inflation from the target and the output gap. |
| Changing economic relationships | As inflation targeting framework gains credibility, linkages between inflation and the level of economic activity seem to weaken. Responses to external shocks range from doing nothing to a mixture of foreign |
| Responding to economic and financial shocks | exchange intervention and tighter monetary policy, depending on whether shocks are expected to affect inflation expectations or the stability of the financial system. |
| Breaches of the inflation target | Asymmetric responses to breaches of floor and ceiling during disinflation, and symmetric responses when inflation is at the long-run level; breaches do not seem to have damaged credibility. |

**Organizational Implications of Central Banks**

| | |
|---|---|
| Internal decision making | Many central banks have incorporated a broader range of perspectives and decentralized their organizational structure to enhance judgement-based decision making. |
| Monetary policy committees | Most central banks have formal committees. Consensus decisions are typically published while voting records are not. |
| Central bank organization | Emerging market central banks have reorganized to improve data collection, inflation forecasting, and policy analysis. |
| Transition Issues Disinflation | Emerging market countries that started with higher inflation and crawling exchange rate bands disinflated over a long period to minimize output disruptions. |
| Long-run inflation objective | Consensus of around 1 - 3 percent for industrial countries and somewhat higher for emerging market countries. |
| Shifting from a fixed exchange rate regime | Slow and fast-track transitions from an exchange rate regime to full-fledged inflation targeting framework for emerging market countries. |

Source: Adapted from Andrea Shaechter, Mark R. Stone, and Mark Zelmer, 2000, Page 2.

### Table A2: Operating Targets and Main Instruments of Monetary Policy

| *Emerging Market Countries* | Operating Target | Main Instruments |
|---|---|---|
| Brazil | Overnight interbankrate (SELIC) | Open market operations (OMOs) using Treasury Bonds or bonds issued by the central bank. |
| Chile | Real overnight interbank rate tied to CPI with 20-day lag. | OMOs through issuance of central bank papers and repos |
| Colombia | Overnight repo rate | OMOs with repos and government securities |
| CzechRepublic | Two-week interbank rate | Daily two-week repo operations |
| Israel | Interest rate on short-term loans to and deposits from banks | Fixed-term and daily auctions for deposits from banks, overnight discount window loans to banks, OMOs with three months central bank bills |
| Hungary | Short-term interbank rates | Weekly auctions of two-weeks central bank deposits three months central bank bills |
| Korea | Overnight interbank rate | OMOs with government securities |
| Mexico | Aggregate commercial bank current account balance with the central bank | OMOs with government or central bank securities |
| Poland | 28-day National Bank of Poland bill rate | OMOs with central bank bills |
| South Africa | Government interbank rate | OMOs with government securities |
| Thailand | Two-week repo rate | OMOs with repos |

*Industrial
Countries*

| | | |
|---|---|---|
| Australia | Overnight interbank rate | OMOs with repos and outright transactions, and foreign exchange swaps |
| Canada | Overnight rate | Operating band enforced through standing facilities |
| Finland | Short-term money market rate | OMOs with government securities (monthly repos and outright OMOs) |
| Iceland | Short-term money market rate | OMOs with repos |
| New Zealand | Overnight interbank rate | OMOs with repos and outright transactions, and foreign exchange swaps |
| Norway | Overnight interbank rate | OMOs with fixed rate deposits and fixed rate collateralized loans |
| Spain | Overnight interbank rate | OMOs with government securities and central bank paper |
| Sweden | One-week interbank rate | OMOs with repos |
| United Kingdom | Two-week interbank rate | OMOs with repos |

Source: Adapted from Carare, Schaechter, Stone and Zelmer, 2002,Table 4, Page 17.

**Table A3: Monetary Policy Indicators in Inflation Targeting**

| | | |
|---|---|---|
| **Aggregate Demand and Supply** | Aggregate Demand | Consumption |
| | | Residual investment |
| | | Other investment and stock building |
| | | Public sector budgetary |
| | | Exports |
| | | Imports |
| | | Other main current account items |
| | Aggregate Supply | Output |
| | | Labour demand |
| | | un)employment indicators |
| | | Wage growth |
| | | Profit margin |
| | | Productivity |
| | | Opinion/expectation surveys of any of the above |
| | | Index of some of the above (leading indicators index) |
| **Financial Sector indicators** | | |
| | Quantities | Broader monetary aggregates |
| | | Credit aggregates |
| | Interest and Exchange Rates | Key Market interest rates |
| | | Exchange rate |
| | | Monetary conditions index |
| | | Leading rate vs. market rate spread |

| | | |
|---|---|---|
| | Interest and Exchange Rate Expectations | Term structure of interest rates |
| | | Info on interest rate expectations from forwards, futures, options, and the like |
| | | Interest spread against key foreign rates |
| | | Info on exchange rate expectations from indexed debt, or forwards, futures, options, and similar factors |
| **Inflation Expectations** | | Information derived from inflation-indexed debt |
| | | Central bank surveys of inflation expectations |
| | | Market forecasts of inflation |
| **Price indices** | | Derived CPS measures and sub-indices (underlying, median trimmed, and the like) |
| | | Wholesale prices/producer prices |
| | | Raw material/commodity prices |
| | | Import/export prices |
| | | Property prices |
| | | Equity prices and related derivative prices |

Source: Adapted from AlinaCarare, Andrea Schaechter, Mark Stone, and Mark Zelmer, 2002, Page 34.

### Table A4: Tasks Involved in Producing Inflation Forecasts

Forecasting inflation requires information on interest rates, productivity, commodity prices, etc. The process of producing forecasts involves the following course of action:

**Design the forecasting system**

Identify the necessary tasks
Assign responsibilities
Design an incentive structure for individuals participating in the process

**Design a methodology to analyze the information**

Design the core model
Design the supporting models that provide alternative points of view or inputs into core model
Estimate or calibrate core and supporting econometric models

**Design a system for consolidating information obtained from different models into a single forecast**

**Gather the information**

Identify information that must be collected or produced
Get the information from:
Other institutions
Different departments in the central bank
Surveys
Interactions with the private sector

**Input data into**    A single point of entry to standardize and integrate
**the database**     information might become useful

**Maintain a system to monitor and record news that could affect inflation outlook**

     Maintenance of repository system of related information might also improve information collection and aggregation it will also result in better collaboration and knowledge sharing within different units and departments and closer integration of different decision-making bodies.

**Have forecasting team present interest rate scenarios to Monetary Policy Committee**

     Analyze the information
     Run the models
     Interpret the model results
     Integrate the results from different models into a single forecast
     Present the official technical forecast to the decision makers

**Discuss the technical proposal of the staff at policy level**

**Interact with staff on the impact of alternative scenarios for future policy interest rates**

**Communicate forecast to the market**

     Announce the forecast
     Prepare the report announcing the forecast

**Follow up**

     Assess the accuracy of the models
     Monitor new developments in modelling technology
     Design improvements in forecasting system

Sources: Adapted from Jorge Ivan Canales-Kriljenko, TurgutKisinbay, Rodolfo Maino, and Eric Parrado, 2006, Page 6.

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