The Augmented Taylor Rule and Setting of Monetary Policy Rates in a Developing and Small Open Economies: Bank of Uganda’s Experience

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Abstract
July 2011, Bank of Uganda (BOU) moved away from targeting the growth in money supply, which had been the intermediate target since the early 1990s to a partial inflation targeting monetary policy framework, Inflation Targeting Lite (ITL). The BOU’s monetary policy is directed at steering the interest rate paid on 7-day funds towards the policy rate. The eventual impact that changes in this interest rate have on the business cycle and inflation depends upon how the changes are transmitted to other interest rates in the economy, and then how those interest rates affect economic activity. This paper seeks to explore whether setting of the monetary policy rate using a modified Taylor approach is an appropriate approach in guiding the BOU monetary policy. To evaluate whether the modified Taylor rule is applicable to Ugandan economy characterised by a financial sector that is in its early stages of development, we look at its performance in guiding BoU’s monetary policy. We derive three versions of Taylor rule type policy rates and make a comparison in relation to what BOU’s policy rate was in the last two years. Overall, the results indicate that if the BOU is to maintain its credibility, paying less attention to output and exchange rate deviations from their steady states would be the most optimal approach. The more the BOU focuses on more than one target, the less it responds to the inflationary pressures.

JEL Classification: E52, E58, F41

KEYWORDS: Monetary policy, Inflation targeting, Taylor Rule, Uganda.
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1. INTRODUCTION

The theory and practice of monetary policy in fiat money regimes under flexible exchange rates has evolved continuously over the last few decades. Since the early 1990s, inflation targeting has established itself as a monetary policy framework dominating the academic and intellectual debate and exerting a strong influence on central bank practice. It represents a particular way of setting a nominal anchor, which determines the monetary policy objectives and shapes the decision-making process. In practice, the definition of the term ‘inflation targeting’ remains ambiguous. At the outset, it was defined as a rather strict ‘rules-based’ monetary policy framework. More recently, a more flexible definition, which can be characterised as a ‘principles based’ monetary policy framework has become popular due to severe shocks and instabilities in money demand.

By far the most visible and obvious power of many modern central banks is to influence market interest rates towards influencing interest rate formation in the economy via the short-term interest rates without directly aiming its effects at the quantity of money. The quantity of money is used as one of inflationary indicators among many others by most central banks. However, in most low-income countries, especially those dependent on the International Financial Institutions, either for policy advice or financial resources, targeting monetary aggregates has remained the basis of conducting monetary policy, even when the underlying factors that had made this approach relevant have changed. The transformation of the macroeconomic landscape in Uganda, as elsewhere in Africa, has so altered conditions that the redesign of the monetary framework is both pressing and meaningful. This transformation is not just in terms of economic conditions but also of perceptions of the scope and limits of monetary policy.

The growing awareness of the weaknesses regarding reserve money targeting accompanied by increased volatility in risk appetite and short-term capital flows following the global crisis led the BOU to seek alternative monetary policy framework, the ‘Inflation-Targeting Lite’ (ITL) which is partial\(^1\) inflation targeting framework. The main reason for abandoning money supply as an intermediate target under the reserve money programme monetary policy framework was because innovations in the financial market made the relationship between money supply and prices highly unstable. Money supply was no longer a reliable indicator of monetary conditions in the short run, although persistent growth in money supply is always a formula for inflation. Under the ITL framework, economic growth and the exchange rate stability are supplementary objectives without prejudice to price stability.

As per the 1995 Uganda Constitution, the purpose of the BOU is “to look after the stability of the currency.” To achieve this, the Bank must prevent its value from being eroded by price inflation. From an operational perspective, this is achieved through price-level stability, as reflected in low, stable inflation, sustainable over time, which BOU has interpreted as core inflation of 5 per cent. To meet its goals, the law empowers the BOU to use monetary and

\(^1\) Stone (2003, p. 8) defines inflation targeting ‘lite’ regimes as ones where the central bank “announces a broad inflation objective but owing to its relative low credibility it is not able to maintain inflation as the foremost policy objective. Their relatively low credibility reflects their vulnerability to large economic shocks and financial instability and a weak institutional framework.” ITL can be viewed as a transitional regime towards full-fledged inflation targeting
foreign exchange policy instruments and some aspects of financial and capital market regulation.

The BoU’s focus in ensuring stable prices recognizes its powers, but also the limits regarding its influence over the rest of the economy. Over long horizons, the size of the economy and its average rate of growth are driven by developments on the supply side – such as the availability of land and labour, the extent of accumulation of real capital, technology, and the efficiency with which we use all those factors. Monetary policy can’t make those factors grow faster. Monetary policy determines inflation and other nominal variables such as monetary aggregates, nominal interest rates and the nominal foreign exchange rate, but is incapable of systematically influencing real variables, such as output, employment and investment, and relative prices such as the real foreign exchange rate, and real interest rates. In contrast, in the shorter term, monetary policy does influence the value of real variables and relative prices, so appropriate management can cushion the volatility of output and employment when shocks occur. This ability to stabilize the business cycle makes this a powerful policy instrument in macroeconomic management. When faced with price shocks or troubled financial markets, this same power can, however, involve short-term tradeoffs for monetary policy, in particular between the volatility of inflation and output. These conditions may be more or less severe, depending on the policy framework, its credibility, and the structure of the economy.

The BoU’s main monetary policy instrument is the interest rate and not money per se, which does not invalidate the relationship between money and prices. On average, prices rise according to the target and agents’ expectations about future interest rates, deduced from the Bank deeds and words, and this determines inflation. Monetary policy is carried out by influencing the 7-day interbank interest rate, that is, the rate at which commercial banks grant credit to each other. As in any other market, the price (in this case, the 7-day interest rate) is determined by the equilibrium between the supply of and demand for funds or liquidity. In the process of influencing the 7-day interbank rate the Bank controls the supply of liquidity or monetary base, so that the resulting interest rate is close to the Central Bank Rate (CBR). Thus, the CBR reflects the target interbank rate sought by the BOU. The eventual impact that changes in this interest rate have on the business cycle and inflation depends upon how the changes are transmitted to other interest rates in the economy, and then how those interest rates affect economic activity.

The ultimate objective of monetary policy actions is to impact economic activity and inflation. Several reasons explain why, over the shorter term, market changes in response to shifts in interest rates do not immediately translate into higher or lower prices, but rather affect economic activity. For example, the costs that price corrections entail, nominal rigidity in prices and wages, or informational problems can mean that, in the short term, prices and wages adjust to monetary changes gradually rather than suddenly. This causes real variables such as employment and the use of installed capacity to fluctuate and thus deviate from their long-term trends. As time passes, these shifts ultimately affect inflation. In contrast, during periods of very high inflation, prices and
wages adjust very quickly and the impact on output is small or may even be the opposite of what is sought.

In an economy characterized by imperfect information about the liquidity needs of the banking system to accommodate shocks arising from economic activities (taxes, government injections, remittances etc.) the choice of the policy instrument is non-trivial. With perfect information, it does not matter whether the central bank uses the short-term interest rates or a monetary aggregate as the policy instrument, so long as the money demand function yields a monotonic relation between the two variables. With imperfect information, the ex-post volatility of a variety of key variables hinges on the instrument choice (Clarida et al 1999). In using interest rate as the instrument, the BOU allows the money stock to adjust to the money demand shock. In such a scenario, there is no impact of money demand shocks on output or inflation because the BOU operations would perfectly accommodate them. With the money targeting, the opposite is true as the interest rates and (possibly) output adjusts to clear the money market.

The key ingredient in the BoU’s monetary policy decision-making involves evaluating the future projection for inflation. Because of this, it is necessary to project key macroeconomic variables that influence inflation. If inflation forecasts are indicating rising inflation, in the near term, monetary policy has to be tightened now and this could require a slower growth in aggregate demand. But BOU’s conduct of monetary policy aims at ensuring that the period of slower growth is not any longer or more pronounced than necessary. By the same token, if as a result of some shock demand falls below potential supply capacity, the resulting downward pressure on inflation provide scope for monetary policy to be easier for a time, which could help to limit the cyclical weakness in economic activity.

The challenge in moving to price based monetary policy framework is how to set a relevant policy rate. There are two main approaches to specifying monetary policy in the literature; optimal policy and simple instrument rules. By optimal policy, is meant minimizing a specific loss function using all information embedded in the model. Simple instrument rules, on the other hand, specify how the monetary policy instrument- the key interest rate - should respond to a subset of the information available to the policy maker. The original Taylor (1993) rule is an example of a simple rule where the central bank responds to a subset of the information set, i.e., the rate of inflation and the output gap. By construction, simple rules lead to higher loss than optimal policy when evaluated in a given model, but the excess loss depends both on how restricted the simple rule is and on the model. In addition to providing a rough description of actual policy, simple rules have a normative motivation; they are considered more robust to model uncertainty than optimal policy.

In the literature, the model simulations are commonly based on the assumption that the central bank commits to the simple rule in a mechanical way. However, as pointed out by Svensson (2003), full commitment to a simple rule like the Taylor rule is unrealistic, and no central bank does this in practice. Svensson therefore rejects simple rules, both from a positive and from a normative perspective. He advocates instead optimal policy (or targeting rules) and argues that this is a more reasonable description of
monetary policy, as the central bank is treated as an optimizing agent in the same way as households and firms, and that optimal policy leads to better outcomes than simple rules. Although Svensson’s critique may be justified, the fact that central banks do not commit to following simple instrument rules like the Taylor rule mechanically, does not imply that monetary policy is not influenced by such rules at all.

This paper presents the BOU framework as an example of the practical application of a monetary policy concept, which marries a firm long-term anchor for nominal stability with short-term flexibility. We believe the BOU’s monetary policy framework provides relevant insights for other central banks aiming to take up an intermediate position between full discretion and rigidly defined short-term inflation targeting. In essence, the BOU’s case can be seen as a ‘real-life’ experiment.

The rest of this paper proceeds as follows: section 2 provides a review of the evolution of Uganda’s monetary policy frameworks. Section 3 presents the review of the literature on the Taylor rule approach, section 4 explains the setup of the Taylor rule, while section 5 describes how this has been applied in Uganda and its performance. Section 6 concludes.


Inflation averaged 91.1 percent in 1981-1992. The relatively loose monetary stance, reflected the more pro-growth— rather than anti-inflation—bias in the monetary policy. As inflation picked up, second-round price effects took hold with inflation expectations drifting upwards. Indeed, the post-Independence monetary frameworks in Uganda and in Africa as a whole were largely geared towards the (cheap) financing of government activities, the extension of subsidized credit to favoured sectors and an active pursuit of an exchange rate target (more often reflecting the interests of powerful urban consumers at the expense of producers), rather than to the control of inflation. Moreover, weak fiscal control – informed to a degree by the same orthodoxy – meant that monetary policy was conducted in an environment of substantial fiscal dominance, so that even basic macroeconomic policy coherence was achieved only by recourse to progressively tighter controls on the capital account and other policies that repressed the development of domestic financial markets. This cocktail of fiscal dominance and the overburdening of monetary policy with multiple objectives led to the inevitable outcome that Uganda’s monetary regime neither delivered low inflation nor posted sustained gains on the other policy objectives. Moreover, persistent fiscal imbalances, in the absence of a strong nominal anchor, resulted in the government resort to the inflation tax- the issuing/printing of money to pay for goods and services that leads to more inflation and is thus inconsistent with price stability.

History is witness to the economic costs and enduring harmful effects of allowing inflation to infect an economy through nominal second-round effects. Short-circuiting these effects will also provide more leeway for policymakers to stabilize output. If inflation expectations are well-anchored at low levels, firms are unlikely to raise prices by as much as an inflationary surge would imply otherwise. Similarly, workers may also demand a relatively lower pay rise and be more prepared to enter into long nominal
contracts so long as inflation is anticipated to remain low.

By the early 1990s, however, the evident failure of an (over) activist monetary policy encouraged moves to dismantle control regimes, liberalize foreign exchange markets and establish more robust fiscal regimes (in the context of IMF-supported stabilization programmes). As a consequence, systems of financial repression were dismantled, a flexible exchange rate regime was introduced and these gradually opened up the space for a genuinely independent central bank. These reforms also resulted in macroeconomic stability as well as changes in the structure of the economy and integration in the global financial system. Uganda undertook other financial sector reforms, which among other things empowered the BOU to independently conduct monetary policy without due interference from the Treasury. Since the mid-1990s, the BOU has effectively controlled liquidity through its use of open market operations and reserve requirements as well as, through its intervention in the foreign exchange market. The high aid inflows during this period and seasonality in the foreign exchange earnings necessitated the periodic intervention by the BOU to avoid sharp fluctuations in the exchange rate. This intervention also helped to support the objective of price stability.

The process of implementing monetary policy in Uganda has undergone fundamental changes over the period 1993 to 2014. These changes began with the structural reforms aimed at increasing the role of market forces in resource allocation and creating a stable macroeconomic environment. The liberalization of the foreign exchange market in 1993 and the capital account in 1995 represented two major steps in the reform process. Following liberalization, the economy experienced macroeconomic stability, evidenced by stable inflation, which averaged at 7.3 percent between 1993 and 2013.

The monetary policy framework and strategy of the BOU during 1993-2011 period was aimed at using monetary targets to achieve the desired objective of price stability. The BOU used open market operations to manage bank reserves and currency in circulation. Adjustments in the components of base money influenced interest rates, the level of credit and money supply through the money multiplier process, and ultimately the price level. This process relied on a stable and consistent relationship between monetary aggregates and the price level. As shown in Figure 1, there was a strong justification for monetary policy’s reliance on monetary aggregates to control inflation. Inflation in the late 1980s was largely due to monetisation of fiscal deficits as shown by the strong link between inflation and broad money growth in the late 1980s and early 1990s and as soon as this link was broken, inflation decelerated sharply.

Figure 1: Inflation developments, 1981-2012.

Source: Bank of Uganda.

In particular, Uganda experienced a bout of hyperinflation in the second half of the 1980s
and the early 1990s, but a major stabilization effort brought inflation under control. Tight monetary and fiscal policy played a key role in bringing inflation down from annual rates exceeding 200 per cent in 1986-88 to below 10 per cent in 1993 and an average of 5.1 per cent between 1993 and 2007. Stabilization efforts led to a strong growth performance in the early 1990s.

Inflation remained subdued while growth slowed down in the late 1990s and early 2000s. The decline in international coffee prices was the principal cause of the slowdown in growth in the late 1990s and most of 2000s. The economy began to rebound in late 1999—largely due to a revival of domestic investment, particularly private sector investment—but it was growing at a slower rate than in the early 1990s. Gross fixed capital formation as a percentage of GDP averaged 14 per cent in 1988 to 1998 and 22 per cent between 2000 and 2011 while private sector gross fixed capital formation as percentage of GDP averaged 9 per cent in 1988 to 1998 and 16 per cent between 2000 and 2011.

Inflation rose sharply as growth picked up strongly between 2006 and mid-2011 Figure 2), reflecting sustained increases in international commodity prices and growing excess demand. Inflation picked up again towards the end of 2011, reflecting in part the impact of the economic stimulus package introduced in response to the global crisis, drought that affected food production and a surge in international commodity prices, especially oil prices.

2.1 MONETARY TARGETING FRAMEWORK:

Monetary quantities are always likely to be of some significance for the central bank. For example, they are especially important in countries where measured interest rates contain little useful information on monetary conditions – because the financial markets are highly illiquid or market forces are not allowed to operate. In this case, data on stocks of liquidity may be the only firm financial information available. For this, if for no other reason, the levels of cash balances held in the economy will be a crucial data source for general economic surveillance and for policy analysis. The analytical background for money targeting is as follows. Starting from the quantity identity, one gets the average money growth, \( \Delta \bar{m} \), and average inflation, \( \Delta \bar{p} \), which fulfil the identity:

\[
\Delta \bar{m}_t + \Delta \bar{v}_t = \Delta \bar{p}_t + \Delta \bar{y}_t
\]  

(1)

where \( p, m, y \) and \( v \) are the (logs of the) price level, the money stock, real income and the income velocity of money, respectively, and the bars denote long-run average values. Taking the velocity trend and the long-run average rate of real output growth to be...
exogenous, it follows from (1) that trend inflation can be pinned down by controlling the trend rate of money growth:

\[ \Delta \bar{p}_t = \Delta \bar{m}_t + \Delta \bar{v}_t - \Delta \bar{y}_t \]  

(2)

Based on this reasoning, the BOU derives the target for average money growth in year \( t \), \( \Delta \bar{m}^*_t \), from the sum of the (maximum) rise in prices it is willing to tolerate, \( \Delta p^*_t \), the predicted growth in potential output, \( E_{t-1}\Delta y^*_t \), and the expected trend rate of change in velocity, \( E_{t-1}\Delta v^*_t \):

\[ \Delta \bar{m}^*_t = \Delta \bar{p}^*_t + E_{t-1}(\Delta v^*_t) - E_{t-1}(\Delta y^*_t) \]  

(3)

where the deltas now represent year-on-year changes, and \( E_{t-1} \) denotes expectations at the end of year \( t-1 \). The target rate for average (year-on-year) money growth is then translated into a target rate for money growth in the course of the year.

While this basic relationship might be uncontested over medium to longer-term horizons, they might not strictly apply over the shorter term. On a month-to-month or quarter-to-quarter basis and even beyond, the basic relationship between the money stock and the overall domestic price level is often obscured by a variety of other factors. Any attempt to strictly tie money growth to its desired path in the short-term could have contributed to the disturbing volatility in interest and exchange rates in the recent past, thus imposing unnecessary adjustment costs on the economy. Moreover, the implementation of the reserve money programme tries to exploit the presumed relationship between the money base, the quantity of broader money supply. The assumption is that BOU exogenously controls the money base in order to control broader monetary aggregates. Manipulation of the monetary base leads to further changes in broader monetary aggregates via the limiting parameters of the money multiplier. An exogenous money supply not only misrepresents how monetary policy is actually implemented but it also becomes highly restrictive and even confusing when trying to reconcile traditional approaches with current operating procedures and the institutional settlement framework surrounding or underpinning the implementation process.

This framework is configured rather conventionally around a broad-money anchor, with reserve money functioning as the operational target. The money-targeting framework cannot be relied on to guide monetary policy in a situation where the economy in developing and financial markets are deepening and becoming globally integrated. Moreover, as a communication tool, base money cannot serve to communicate the stance of monetary policy to the public. In particular, its effectiveness is premised on two big “ifs”. The biggest “if” is that there must be a strong and reliable relationship between the goal variable (inflation) and the targeted aggregate (M2). If there are large swings in velocity, so that the relationship between the monetary aggregate and the goal variable is weak, then monetary aggregate targeting will not work. The second “if” is that the base money (operational target) must be well controlled by the central bank and it must have a stable and predictable link with M2-money multiplier should be stable and predictable.

As evident in Figures 3a and 3b, money velocity has been steadily declining although with marked year-on-year variation. This trend fall in velocity – which increases the inflation consistent growth of broad money - has been accompanied by an increase in the money multiplier which, for a given target growth rate of broad money, reduces the inflation consistent growth rate of reserve money. More significantly, however, both have been relatively volatile which makes
prediction difficult. Mistakes in forecasting velocity and the multiplier (and, indeed, errors in forecasting real output) are transmitted to the real economy via swings in the liquidity conditions facing banks, causing them to maintain a more liquid asset book which adversely affects the cost and quantity of their long-term lending. Setting aside the challenges in controlling reserve money itself, predicting velocity and the multiplier is becoming increasingly difficult.

![Figure 3a: Money velocity trend in Uganda](image)

![Figure 3b: Money multiplier trend in Uganda](image)

The trends in Figures 3a and 3b could be an indication that the relationships between the base money and broader monetary aggregates and between the monetary aggregates and monetary policy goals weakened. Moreover, it increasingly became apparent that, over time horizons that mattered importantly for monetary policy, different monetary aggregates exhibited widely disparate growth rates. Hence it was difficult to know which specific measure of money presented the appropriate benchmark to which to respond to. More fundamentally, changes in conditions affecting the public’s holding of deposits—the introduction of new electronic technologies that made possible for new ways for both households and firms to manage their money holdings, banking, and the increasing integration in the global financial system, which enabled large deposit holders to substitute more easily across national boundaries in the deposits and alternative instruments they held in their portfolios—destabilizing what had at least appeared to be long-standing regularities in the demand for money.

At the same time, the empirical relationship linking money growth to the increase of either prices or income, which had been the core empirical underpinning of the insight that limiting money growth would slow price inflation in the first place, begun to unravel. Standard statistical exercises that for years had shown a reasonably stable relationship of money growth to inflation (stable enough to be reliable for policy purposes) no longer did so. However, partly because stable relationships never developed between the narrow banking system quantities (base money) and economic activity, the interest and exchange rates have proved to be very volatile.

The concern on the efficacy of the money-targeting approach was increasing difficulty and the consequences of these prediction errors can be seen if we use the reserve money growth identity to decompose, \textit{ex post}, the inflation error.
\[
\pi - \pi^* = \left( \hat{B} - \hat{B}^* \right) + \left( \hat{\nu} - \hat{\nu}^* \right) + \left( \hat{Y} - \hat{Y}^* \right) + \left( \hat{k} - \hat{k}^* \right)
\]

(4)

Table 1 summarises the inflation decomposition to the various components as specified in the monetary aggregates targeting. Evidence points to the fact that inflation deviations from the annual targets has been largely due to the residual not because of monetary aggregates growth as argued by the monetary aggregates targeting. Money multiplier and money velocity have also been quite volatile with large prediction errors. Both \(M_2\) and \(M_3\) annual growth averages were 20.3 and 19.7 per cent, respectively between 2005/6 and 2012/13 but \(M_3\) and \(M_2\) velocities have declined by 19.3 per cent and 9.6 per cent, respectively suggesting that broad money increases have been partly offset by the decline in velocity-leading to velocity crowding-out - rather than increase in nominal GDP. One the major causes of the velocity decline is the increase in competitiveness within the banking sector that has led to higher credit. The resulting fall in the overall cost of financial intermediation for households and companies induced a substitution towards bank credit from alternative forms of finance, increasing the money supply for a given level of nominal spending. In particular, reforms in Uganda have both increased the monetary intensity of economic activity (thereby exogenously raising money demand) and supported a step-decline in inflation expectations. Failure to recognize this means excessive monetary restraint and excessively high domestic interest rates.

Table 1: Monetary targeting and prediction Errors.

<table>
<thead>
<tr>
<th></th>
<th>Inflation error</th>
<th>Excess money growth</th>
<th>Prediction error in real GDP growth rate</th>
<th>Velocity deviation</th>
<th>money multiplier deviation</th>
<th>Residual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001/02</td>
<td>2.3</td>
<td>-4.5</td>
<td>-2.1</td>
<td>-0.7</td>
<td>-6.5</td>
<td>16.1</td>
</tr>
<tr>
<td>2002/03</td>
<td>-0.4</td>
<td>-9.0</td>
<td>0.0</td>
<td>-1.3</td>
<td>-24.1</td>
<td>33.9</td>
</tr>
<tr>
<td>2003/04</td>
<td>-0.8</td>
<td>9.0</td>
<td>-1.4</td>
<td>4.5</td>
<td>10.0</td>
<td>-23.0</td>
</tr>
<tr>
<td>2004/05</td>
<td>4.5</td>
<td>1.5</td>
<td>0.6</td>
<td>18.7</td>
<td>-2.6</td>
<td>-13.7</td>
</tr>
<tr>
<td>2005/06</td>
<td>2.1</td>
<td>0.7</td>
<td>-4.4</td>
<td>-13.2</td>
<td>-4.2</td>
<td>23.1</td>
</tr>
<tr>
<td>2006/07</td>
<td>2.2</td>
<td>2.8</td>
<td>-2.2</td>
<td>1.4</td>
<td>-0.2</td>
<td>0.3</td>
</tr>
<tr>
<td>2007/08</td>
<td>2.8</td>
<td>13.2</td>
<td>-1.8</td>
<td>-13.8</td>
<td>-14.6</td>
<td>19.7</td>
</tr>
<tr>
<td>2008/09</td>
<td>2.1</td>
<td>3.8</td>
<td>-1.3</td>
<td>-0.6</td>
<td>2.6</td>
<td>-2.5</td>
</tr>
<tr>
<td>2009/10</td>
<td>-3.8</td>
<td>-3.1</td>
<td>-0.9</td>
<td>-2.9</td>
<td>-6.4</td>
<td>9.4</td>
</tr>
<tr>
<td>2010/11</td>
<td>-1.0</td>
<td>5.2</td>
<td>-1.6</td>
<td>-0.9</td>
<td>-5.1</td>
<td>1.4</td>
</tr>
<tr>
<td>2011/12</td>
<td>17.5</td>
<td>-18.7</td>
<td>0.8</td>
<td>-0.9</td>
<td>-4.9</td>
<td>41.3</td>
</tr>
<tr>
<td>2012/13</td>
<td>-0.7</td>
<td>-7.6</td>
<td>-1.1</td>
<td>-0.8</td>
<td>-2.8</td>
<td>11.7</td>
</tr>
</tbody>
</table>
2.2 Interest Rate Targeting Regime.

The BoU's monetary policy is geared to price stability-medium term inflation of about 5 per cent and sustained economic growth of about 7 per cent. But inflation and output are not variables over which the BOU has direct control, nor is the quantity of deposit money, at least over the horizons considered here. Instead, BOU exerts whatever influence it has over any or all of these macroeconomic magnitudes via its setting of a short-term interest rate. Changes in certain prices, such as perishables, power or fuels, are the most common reason for volatility in the CPI, particularly through public utility rate indexation and fuel prices, as well as the seasonal nature of some goods and services. Over shorter periods, of a few months, most swings in inflation reflect these factors. Over longer periods, inflationary effects depend on propagation through expectations and inflationary inertia. If monetary policy is implemented opportunely and inflation targeting is credible, this propagation can be bounded.

Given the wide range of factors that influence inflation, for efficient monetary policy management, the authorities must study the magnitude and periods across which these phenomena operate. This requires ongoing monitoring to identify how strongly monetary policy is affecting the economy, and to distinguish between the different transmission mechanisms.

Monetary policy affects inflation in Uganda in five main ways: it influences financial asset prices; these prices may impact decisions on spending, production and employment; it also can affect both costs and margins; it produces inflation expectations; and it affects how these factors ultimately affect prices. Thus, modifications in the policy instrument are expected to change the value of the spot foreign exchange rate, affecting the relative price of tradables and non-tradables on international markets, which in turn influence decisions regarding expenditure or production. Moreover, given that part of the consumer basket includes imports and exportables, shifts in the foreign exchange rate directly affect inflation if passed along to domestic prices (pass-through).

Changes in the monetary policy rate directly and swiftly affect other financial prices, for example, short-term deposit rates in the financial system. These changes also affect expectations about the future monetary policy rate, because they influence the longer-term interest rates that apply to household and corporate purchases of durable goods and housing, or investment in plants and equipment. Normally these changes also reflect credit and liquidity volumes within investors’ portfolios.

In the current environment marked by financial integration into international markets, the foreign exchange rate should respond to differences between interest rates in shillings and other currencies, along with shifts in the fundamental variables that determine the real foreign exchange rate in the long run. According to the arbitrage concept, expectations regarding foreign exchange appreciation or depreciation should offset these differences in interest rates. Shifts in the foreign exchange rate also influence macroeconomics because of their impact on income and wealth within the balance sheets of the different economic agents.
Expectations regarding inflation directly influence wages and prices, which in turn determine future inflation trends. Large corrections to the monetary policy rate or shifts in the exchange rate that these may cause, can change agents’ expectations about future price trends. These aspects of monetary policy transmission mechanism can be summarized as in the Figure 4.

**Figure 4: A snapshot of Uganda's monetary policy transmission mechanism**

Prior to October 2009, the BOU adhered closely to its money targets. Shocks to money demand thus generated substantial movements in interbank rates that did not signal policy intentions and which were often temporary and, as a result, had little effect on lending rates or other aspects of the transmission mechanism (Figure 5). Since October 2009 the BOU has allowed for more flexibility in daily money market operations in order to smooth short-term money market rates. This immediately reduced the volatility of interbank rates. In July 2011 the BOU officially launched the IT-lite regime and introduced the Central Bank Rate (CBR) to target the interbank rate. These changes to the policy framework and operations set the stage for changes in short-term interest rates (specifically the CBR) to have a larger impact on the economy.

**Figure 5: Interbank interest rates trend**
There are four reasons underlying the decision. First, the relationship between base money and inflation and economic growth become increasingly unstable and even experiencing a reverse causality due to unstable money demand as well as uncertainty of money multiplier and money velocity behaviours. This instability limited reserve money programme usefulness as an indicator of the appropriate stance of monetary policy. For instance, money/income ratios had grown over time as a result of financial development and successful macroeconomic stabilisation: such changes were hard to predict since they tended to occur discontinuously. Demand for the shilling was also often varied because of the exchange rate developments and as a result, monetary growth was erratic and deviations from targets were not providing a useful guide for setting monetary policy. Second, the signalling of monetary policy to the market and public had been hindered not only because of the difficulty in understanding base money for the public in general, but also due to perceptions of dual nominal anchor, i.e. the base money target and inflation target. Third, the monetary policy response tended to be backward-looking and more difficult to implement, considering a time lag between instrument and inflation target. Fourth, base money was more difficult to control due to the dominant role and unpredictable behaviour of currency demand. The main operating principle guiding the new policy is to control the supply of settlement balances of banks and motivate the banking system to target zero balances at the BoU, through an active interbank trading or transfer of balances at the BoU. This is aimed at engendering symmetric treatment of deficits and surpluses in the settlements accounts, so that for any bank, the cost of an overdraft at the Central Bank would be equal to the opportunity cost of holding a surplus with the Bank.

One of the necessary conditions for the attainment of envisaged effects of monetary policy is the central bank’s ability to stabilize the price of the banking system liquidity around the announced main policy rate. In the implementation of monetary policy it is basically necessary to set such conditions for the use of monetary-policy instruments that will solve the problem of the fundamental deficit or surplus of the banking system liquidity and at the same time allow to react flexibly to daily volatility of the demand of banks for liquidity and to trend changes in the need of liquid resources under such price conditions that are consistent with the announced level of the main policy rate. Since July 2011, the BOU’s policy instrument has been the target it sets for the seven-day interbank interest rate—the central bank rate (CBR). By changing the CBR, the Bank influences the entire spectrum of market interest rates. The CBR influences market rates in two ways: Firstly, it directly influences the marginal cost of funding of the banks and, secondly, it reflects the BOU’s stance on monetary policy.

The pass-through process from the BOU’s policy rate is important for monetary policy, both from the point of view of price stability and from the financial stability perspective. Even if there are additional market and demand factors that affect the determination of commercial banks interest rates, as for example banking competition, size of banks, level of development of financial markets, and even aspects affecting each single customer or credit transaction, interbank interest rates are one of the main drivers of the rates charged by banks on loans. The BOU’s policy rate affect the interbank rates, which are the basis of the process of defining the cost of money lent by banks to their customers, therefore they have effects on the behaviour of borrowers and consequently on the real economy. On the other hand, prices
set by banks influence their profitability. It is clear that banks play an important role in the transmission of monetary policy, especially in a low income country like Uganda, where borrowers rely more heavily on the banking systems to raise funds.

The price of bank loans is a key factor in determining final demand and consequently inflation in an economy. While the central bank policy rate has decreased, the cost of financing the real economy has continued to remain high and sticky downwards. In the short run, lending rates are sticky and so the degree of pass-through is less than one; in the long run the degree of pass-through is higher and, in some cases it may be complete. The adjustment of retail rates to changes in money market rates does need some time and does not occur instantaneously, as the immediate pass-through is smaller than the long-term pass-through. The transmission of monetary policy is also influenced by banks' characteristics, by the size of banks and their liability structure. The effect of monetary policy may be smaller when banks are constrained by regulatory requirements; even if monetary policy is eased, bank cannot expand credits since they can hardly raise new equity.

The size and the dynamics of the effect are highly dependent on the initial level and distribution of capital among banks. Intuitively, the reason is that the capital requirement affects bank behaviour more when bank equity is low. Adapting to changes in official interest rates may be delayed due to the presence of agency costs and customer switching costs. The heterogeneities in the degree of pass-through are related to the presence of structural breaks and discrete economic events. Heterogeneity in adjustments is also found to be linked to menu costs and key financial ratios under managerial control. This last aspect is of particular interest for the purposes of our analysis: it shows that under normal financial conditions short-run stickiness is higher for those rates on loans with higher credit risk. But when there is a high-volatility scenario, the pass-through increases considerably for all interest. Monetary policy becomes less effective as borrowers' net worth decreases: the effectiveness of expansionary monetary policy can also be weakened by the deterioration of borrowers' balance sheets, contributing to the long economic balance sheets.

Funding uncertainty can explain a more intense competition for retail deposits (including deposits turning into a "loss leader"), and typically dampens the rate of pass-through from changes in the central bank's policy rate to market interest rates. Focusing on the transmission mechanism between changes in market interest rates and bank rates, these two approaches appear to be highly related as they both base banks price setting on the following marginal cost pricing model equation:

$$Lending\ rate = \beta_0 + \beta_1 CBR$$

where $Lending\ rate$ is the weighted average price set by banks, $\beta_0$ is a constant mark-up and $\beta_1$ measures the degree of pass-through. Estimates suggest that $Lending\ rate = 18.6 + 0.4 CBR$. The coefficient $\beta_1 = 0.4$, suggests that banks have some degree of market power and demand elasticity of bank products, with respect to retail rates, is inelastic, resulting from the existence of switching costs and asymmetric information costs. For the short-term money market rates (like interbank rates) $Interbank\ rate = -5.0 + 1.15 CBR$ they are strongly related with policy rates.
3. Review of the Literature on the Taylor Rule Approach

The rise of inflation targeting during the 1990s. First introduced by the Reserve Bank of New Zealand in 1989 and then adopted by the Bank of Canada, the Bank of England, Sweden’s Riksbank and the Reserve Bank of Australia in the early 1990s, inflation targeting became widely accepted by the end of the 1990s as the declared policy framework of numerous additional central banks. Inflation targeting has also been actively promoted by international organisations such as the IMF and the OECD, as well as by many academic economists and other observers of monetary policy.

In a general and broad sense, inflation targeting is defined as a framework which gives high priority to the maintenance of price stability, typically defined as a low and stable rate of consumer price inflation, and emphasises transparency and accountability in central banking. Bernanke, Laubach, Mishkin and Posen (1999,) provide the following definition in this spirit: “Inflation targeting is a framework for monetary policy characterized by the public announcement of official quantitative targets (or target ranges) for the inflation rate over one or more time horizons, and by explicit acknowledgement that low, stable inflation is monetary policy's primary long-term goal. Among other important features of inflation targeting are vigorous efforts to communicate with the public about the plans and objectives of the monetary authorities, and, in many cases, mechanisms that strengthen the central bank’s accountability for attaining those objectives.”

Goodfriend (2005) and Faust and Henderson (2004), among others, have provided similar definitions stressing a strong commitment to a long-run inflation goal, along with an emphasis on transparency and accountability, as core characteristics of inflation targeting. In this spirit, inflation targeting can be seen as having evolved gradually from earlier practices of certain central banks, most particularly the Bundesbank and the Swiss National Bank, in the latter part of the 1970s and the 1980s (Bernanke, 2003). Indeed, these two central banks have been referred to as “inflation targeters in disguise” by Bernanke, Laubach, Mishkin and Posen (1999). Using an even broader definition based exclusively on the overriding importance of a long-run price stability objective, most major central banks today could be classified – at least implicitly – as inflation targeters. For example, Goodfriend (2005) refers to the Federal Reserve’s monetary policy of the last two decades as one of a gradual and implicit move to inflation-targeting practices. Arguably, such a wide definition of inflation targeting is not fruitful for a discussion about the virtues and limitations of different monetary policy concepts.

Consequently, the term should be reserved for a stricter and somewhat narrower interpretation. This includes the setting and announcement of explicit inflation targets, defined over a specified time frame which typically lasts one to two years, as opposed to a more general, medium to long-term commitment. At an operational level, it stresses the use and publication of inflation forecasts and an inflation report. All of the central banks that adopted inflation targeting in the early stages have applied the concept accordingly, and much of the academic literature reflects this view.

A definition of this kind substantially reduces the group of central banks which can be said to practice inflation targeting. For instance,
the Federal Reserve, the European Central Bank (ECB), the Bank of Japan and the Swiss National Bank are clearly not inflation targeters in this sense. A useful discussion of monetary policy frameworks should not, however, be excessively focused on particular labels but rather concentrate on the key substantive issues.

The inability of monetary policy to boost economic activity in the long run, the importance of expectations, the benefits of price stability, and the time-inconsistency problem are the reasons that a credible commitment to a nominal anchor--i.e., stabilization of a nominal variable such as the inflation rate, the money supply, or an exchange rate--is crucial to successful monetary policy outcomes. An institutional commitment to price stability via establishing a nominal anchor provides a counterbalance to the time-inconsistency problem because it makes it clear that the central bank must focus on the long-run and thus resist the temptation to pursue short-run expansionary policies that are inconsistent with the nominal anchor. Commitment to a nominal anchor can also encourage the government to be more fiscally responsible, which also supports price stability.

Commitment to a nominal anchor also leads to policy actions that promote price stability, which helps promote economic efficiency and growth. A credible commitment to a nominal anchor helps stabilize inflation expectations, which reduce the likelihood of “inflation scares,” in which expected inflation and interest rates shoot up (Goodfriend, 1993). Inflation scares lead to bad economic outcomes because the rise in inflation expectations leads not only to higher actual inflation but also to monetary policy tightening to get inflation back under control that often results in large declines in economic activity. A credible commitment to a nominal anchor is therefore a crucial element in the successful management of expectations (Goodfriend and King, 1997; Clarida, Gali, and Gertler, 1999; Woodford, 2003). A successful commitment to a nominal anchor has been found to produce not only more-stable inflation but lower volatility of output fluctuations (Fatás, Mihov, and Rose, 2007; Mishkin and Schmidt-Hebbel, 2002, 2007).

Commitment to a nominal anchor can also help stabilize output and employment. Specifically, to counter a contractionary demand shock, the monetary authorities response is to reduce the short-run nominal interest rate; however, the effectiveness of such a policy action may be hindered if long-run inflation expectations are not firmly anchored. For example, if the private sector becomes less certain about the longer-run inflation outlook, then an increase in the inflation risk premium could boost longer-term interest rates by more than the increase in expected inflation. The higher inflation risk premium would place upward pressure on the real costs of long-term financing for households and businesses (whose debt contracts are almost always expressed in nominal terms) and hence might partially offset the direct monetary stimulus. Thus, a central bank commitment that firmly anchors long-run inflation expectations can make an important contribution to the effectiveness of its actions aimed at stabilizing economic activity in the face of adverse demand shocks.

One type of commitment that has received enormous attention in the literature is the Taylor rule (Taylor, 1993), which describes monetary policy as setting a policy rate in response to the deviation of inflation from its desired level or target (the inflation gap) and the deviation of output from its natural rate level (the output gap). Taylor (1993)
emphasized that a rule of this type had desirable properties and in particular would stabilize inflation only if the coefficient on the inflation gap exceeded unity. This conclusion came to be known as the “Taylor principle” (Woodford, 2001) and can be described most simply by saying that stabilizing monetary policy must raise the nominal interest rate by more than the rise in inflation. In other words, inflation will remain under control only if real interest rates rise in response to a rise in inflation. Although, the Taylor principle now seems pretty obvious, estimates of Taylor rules, such as those by Clarida, Gali, and Gertler (1998), indicate that during the late 1960s and 1970s many central banks violated the Taylor principle, resulting in the “Great Inflation” that so many countries experienced during this period.

There is a large range of alternative reaction functions (that is, ways of adjusting interest rates in response to economic developments) that central banks can consider when setting monetary policy, of which the Taylor rule is just one. Ideally, the central bank would like to use the “optimal” reaction function – the one that most consistently produces interest rate outcomes consistent with keeping inflation within the target range. The relative merit of the different rules available is at the heart of recent international research in monetary policy. Many academics and central bankers have compared different policy rules and have identified strengths and weaknesses in each of them (Drew and Hunt, 2000). Often the Taylor rule is one of the options considered in this type of research. The research suggests that the Taylor rule usually does not provide the best way of deciding where to set interest rates for a given model of how the economy works. Usually there is another formula for setting interest rates that takes into account a broader set of information that is more helpful in controlling inflation rates and dampening economic fluctuations.

In identifying the optimal reaction function, the central bank needs to use a model of the economy as the best reaction function may depend on how different parts of the economy are related. However no one knows for certain which model is the right one to use in the analysis. In addition, the structure of the economy (and hence how it should be modelled) changes over time. This brings us to the issue of robustness. Because the merit of a particular rule for setting policy depends on the way the economy works, and because no one has complete understanding of how the economy works, it would be desirable to have a rule that performs well across a range of different conceptions of what drives economic activity and inflationary pressures and it seems that the Taylor rule goes some way to fulfil this robustness criterion (Levin, Wieland and Williams, 1999, 2001 and Taylor, 1999).

The original Taylor rule was backward-looking yet it is widely held that monetary policy needs to be forward looking to be most effective. Due to the lags inherent in monetary policy – some suggest monetary policy can take up to two years to have its full impact – central banks must think about where the economy is going in the future. When the central bank is forward-looking, it is more likely to be effective in preventing inflationary or deflationary pressures. On the other hand, its inputs are data on the recent state of the economy. Therefore, it is arguable that this makes the Taylor rule less useful for monetary policy purposes, given that it does not anticipate the future state of the economy. The extent to which this is a problem depends on the length of the monetary transmission mechanism and the extent to which the current output gap and inflation provide a reliable guide to the future state of
the economy. For example, the longer the monetary transmission lags is, the more forward looking monetary policy should be (Batini and Nelson, 2001, and Ha, 2000). Moreover, although the output gap at the time monetary policy is being formulated might be a guide to the future state of the economy (at the time when monetary policy decisions taken today have their full effect on the economy), monetary policy is more likely to be effective if it is based on a more extensive forecast of the future state of the economy – i.e. by reference to more than just the current output gap. The inability to forecast the future state of the economy with the current output gap and inflation helps to explain the limitations of the Taylor rule in some models. One way to limit the criticism that the Taylor rule is backward looking is to use forecasts of inflation and the output gap in the Taylor rule, so as to make the Taylor rule forward-looking. However, this would remove an advantage of the Taylor rule – that its inputs are based on relatively hard data – and would require the specification of a model of how the economy works so that inflation can be forecast.

It is worth noting that the rate of inflation and the level of the output gap both tend to be quite persistent. If inflation is low now, then it is likely to be low in the next quarter and the quarter after that. Similarly, if the output gap is positive now, then it is likely to remain positive for some time. This inertia means that current inflation and the output gap may not necessarily be bad predictors of future inflation and the output gap. In addition, it is difficult to find variables other than current inflation that contain information about future inflation. Therefore, using forecasts of inflation and the output gap may not make a big difference to the advice of the Taylor rule.

The Taylor rule does not include an explicit allowance for the effects of the exchange rate. This can be seen as a crucial weakness of the Taylor rule in a small, open economy such as Uganda, where the exchange rate plays a major role in economic developments. The exchange rate movements often have significant direct effects on the level of prices, inflation expectations and inflationary dynamics. Undoubtedly, in an open economy such as Uganda, the best way of making monetary policy decisions explicitly takes into account changes in the exchange rate and their effect on the economy. However, predicting the effects of the exchange rate is not always easy. Recent experience in Uganda suggests that the exchange rate is not always a reliable indicator of the future state of the economy, and its effect on inflation is by no means predictable. While the Taylor rule does not account directly for the exchange rate, it does so implicitly. When the exchange rate falls, cyclical output and inflation typically rise. As these two variables are incorporated into the Taylor rule, the Taylor rule takes some account of the effects of exchange rate movements. It is therefore fair to say that, although the Taylor rule does not respond directly to the exchange rate, it does respond indirectly to the effects of the exchange rate.

Conway et al (1999), suggests that the central bank should respond to domestic inflation, rather than the overall inflation which includes import price inflation. If this is the case, then the Taylor rule’s response to headline inflation will be appropriate when domestic inflation is prominent, but not so when inflation in the tradable sector is dominant. A simple remedy for this problem is to use a measure of domestic inflation, such as non-tradable price inflation, in the Taylor rule. On the other hand, Svensson (2000) suggest that it is better to respond to CPI inflation than domestic inflation, whether the
central bank uses a Taylor rule or a more complex reaction function.

In summary, the Taylor rule prescribes that the central bank “lean against the wind” when setting interest rates; that is, that it should raise interest rates when current output rises higher than potential. The rule also prescribes a similar response to inflation—raise interest rates when the inflation rate is projected to be higher than its long-term target. But mere leaning will not be enough when it comes to inflation. Taylor cautioned that interest rates must rise by more than the increase in inflation. Given that nominal interest rates naturally increase one for one with movements in anticipated inflation, just increasing the funds rate one for one with inflation is like treading water. Therefore, the central bank must increase the real funds rate with inflation to make any headway in reducing inflation. This more-than-proportional response of the nominal funds rate to inflation is known as the Taylor principle. Not following the Taylor principle may open the economy up to inflationary spirals. Increases in inflation would reduce real interest rates, which would then further increase inflation.

4. **Setting the CBR: Taylor Rule**
   
   **Type of Policy Rate**

Monetary policy operates through interest rate changes and these are used to offset changes in expectations, and other random shocks, that hit the economy. More formally, the degree to which a central bank is committed to an inflation targeting arrangement can best be assessed by a central bank loss function. Consider the following:

\[
L_t = E_t \sum_{i=0}^{\infty} \beta^i \left[ \pi_{t+i}^2 + \delta y_{t+i}^2 \right] \tag{5}
\]

where: \( \pi \) is the domestic inflation rate gap (deviation between forecasted minus target) and \( y \) refers to the output gap (deviation of forecasted output from its natural rate. \( E \) is the expectations operator and \( \beta \) is the discount rate. The policy parameters, i.e. those specifying the precise nature of the monetary policy system, \( \gamma \) and \( \delta \) are the weights placed on estimated inflation and output gaps. The ratio of the two parameters provides a summary of the nature of the policy regime. For instance, if \( \gamma = 1 \) and \( \delta = 0.5 \), the central bank can be said to be twice as concerned about inflation as it is about output. In the literature, a situation like this (\( \gamma > \delta > 0 \)) is referred to as “flexible” inflation targeting. Output is secondary to the inflation target, but the weight on the output objective prevents excessive volatility in output and delays the attainment of the inflation target. If \( \gamma > 0 \) and \( \delta = 0 \), it is referred to as strict inflation targeting where the inflation target is achieved at any cost.

The BOU attempts to minimize the loss function subject to the following four equations: an IS curve, a Phillips curve, an uncovered interest parity equation, and a Taylor rule. An open economy IS curve where output is determined by expected output, the real interest rate (the traditional transmitter of policy in a closed economy inflation targeting system) and the real exchange rate. The benchmark IS curve is written as follows:

\[
\hat{y}_t = \beta_1 E_t \hat{y}_{t+1} - \beta_2 \left[ i_t - E_t \pi_{t+1} \right] + \beta_3 \left[ \pi_t - \Delta q_t - \pi_t^f \right] + u_t; \beta_1, \beta_2 > 0 \tag{6}
\]

where:

(\( \hat{y} \)) denotes deviation from steady state,
\( \hat{y}_t \) is the output gap, \( i_t \) is the nominal interest rate, \( \pi_t \) is the domestic inflation rate, \( q_t \) is the
nominal exchange rate (domestic currency cost of one unit of foreign currency), $\pi_t^f$ is the foreign inflation rate, and $E_t$ is the expectation of the variable in question, conditional on information available at time $t$.

Although the expectations in equation (6) are expressed as one-period-ahead forecasts, the estimated model may differ if model adequacy tests necessitate a different formulation. In particular, and as is true of the Phillips curve equation (see below), the literature has often tended to estimate IS specifications that include both backward and forward-looking elements to capture the persistence properties of key macroeconomic aggregates. Theoretically, we expect $\beta_2$ to be positive, so that a rise in the real interest rate reduces the current output gap. Output gap persistence is also assumed to be, a priori, positive, so that $\beta_1 > 0$. The third coefficient, $\beta_3$ reflects the impact of the real exchange rate on the output gap; as the impact of real exchange rate changes on domestic output depends on income and export elasticities of demand, there is no strong prior for the sign of this coefficient.

The second equation is the inflation equation. The CPI inflation rate is a weighted function of changes in the price of tradable and non-tradable goods, specified as

$$\Delta P_t = \theta \Delta P_t^T + (1 - \theta) \Delta P_t^{NT}$$

(7)

where $P$ denotes the log of the consumer price index (CPI), $P_t^T$ and $P_t^{NT}$ are the logs of the prices of tradable and non-tradable goods, $\theta$ is the constant weight of the prices of tradable and non-tradable goods in the CPI ($0 < \theta < 1$), and $\Delta$ is the first difference operator. Therefore,

$$\pi_t = \theta \pi_t^T + (1 - \theta) \pi_t^{NT}$$

(8)

For a small, price-taking economy, the rate of change in the price of tradable goods is

$$\pi_t^T = \lambda \dot{e}_t + \phi \pi_t^f$$

(9)

where $\dot{e}$ is the derivative of the log of the nominal exchange rate against the US dollar, and $\pi_t^f$ stands for the inflation of international tradable goods (in US dollars).

As the Ugandan economy is highly dollarized, fluctuations in the exchange rate affect not only the prices of tradable goods but also those of non-tradable goods. For example, some non-tradable goods - particularly durable goods and real estate - are priced in dollars. In addition, some services, including some long-term contracts and rents, are also quoted in dollars. As a result, exchange rate variations pass through to domestic inflation for a broader set of goods than in a non-dollarized economy. Moreover, following an exchange rate depreciation, a rise in the price of tradable goods and of non-tradable goods whose prices are indexed to the exchange rate affects the demand for, and supply of, other non-tradable goods. The change in the price of non-tradable goods is thus defined as

$$\pi_t^{NT} = \alpha \dot{m}_t + \psi \dot{e}_t$$

(10)

where $\dot{m}$ represents excess money and $\psi$ the impact of the dollar-denominated price of particular non-tradable goods. The inflation equation is derived by substituting (9) and (10) into (8):

$$\pi_t = \theta (\lambda \dot{e}_t + \phi \pi_t^f) + (1 - \theta) (\alpha \dot{m}_t + \psi \dot{e}_t)$$

$$\pi_t = (\lambda \theta + (1 - \theta) \psi) \dot{e}_t + \theta \phi \pi_t^f + (1 - \theta) \alpha \dot{m}_t$$

(11)

and can be written in reduced form as

$$\pi_t = \eta \dot{e}_t + \omega \pi_t^f + \kappa \dot{m}_t$$

(12)
This can be extended by including inflation expectations, which is augmented Phillip’s curve (a hybrid Phillips curve), written as:
\[
\pi_t = \alpha_1 \pi_{t-1} + \alpha_2 E_t \pi_{t+1} + \alpha_3 E_t \hat{\pi}_{t+1} + \alpha_4 \hat{\pi}_t + \alpha_5 \pi_t \hat{\pi} + \alpha_6 \hat{m}_t + \varepsilon_t; \quad (13)
\]
with all variables as previously defined. Theoretical considerations suggest inflation persistence which implies that \( \alpha_1 > 0 \), and that a rise in expected inflation is positively related to current inflation so that \( \alpha_2 > 0 \). Similarly, an anticipated rise in the output gap is believed to be inflationary, so that \( \alpha_3 > 0 \).

The theoretical background to the Phillips Curve is that monopolistically competitive firms control their own prices due to product differentiation. Firms are constrained in setting prices, for instance by fixed duration contracts as in Taylor’s (1980) model or, by fixed random periods during which prices cannot be re-set, as in Calvo’s (1983) model. Firm’s desired price depends on the overall price level and the output gap. Firms change their prices infrequently and when they do, they set their price equal to the average of the current and all future desired prices until the time of the next price adjustment. As a result, the actual price level is equal to a weighted average of all prices that firms have set in the past. Under profit maximization, expected future market conditions matter for today’s pricing decision. To be more specific about the exchange rate transmission channel in (6) and (13), a fall in \( \varepsilon \) leads to a higher inflation domestically (pass through) as well as boosts net exports and thus output.

We add to the model a modification of the uncovered interest parity (UIP) equation. It is well-known that UIP can fail to hold empirically, but is, nevertheless, widely used as a benchmark for the purpose of explaining international interest rate differentials. In order to allow for the possibility that there may be systematic country-specific deviations from UIP, we employ the following, modified UIP specification:

\[
i_t = \psi_0 + \psi_1 i_t^f + \psi_2 E_t \hat{\pi}_{t+1} + \Theta^T Z_t + \nu_t
\]
\[
(14)
\]
where \( i_t^f \) is foreign nominal interest rate, say 364 libor rate that is comparable to the domestic nominal interest rate \( \pi_t \), \( \hat{\pi}_{t+1} \) is the exchange rate depreciation and \( \nu_t \) is a random disturbance term. The vector of variables \( Z_t \) has been added to the standard specification to allow for country-specific deviations from UIP-premium.

The equations can be summarised as follows:

**Loss function**:
\[
L_t = E_t \sum_{t=0}^{\infty} \beta^t \{ \gamma \pi_{t+i} + \delta y_{t+i}^2 \}
\]

**IS-Curve**:
\[
\hat{y}_t = \beta_1 E_t \hat{y}_{t+1} - \beta_2 [i_t - E_t \pi_{t+1}] + \beta_3 \left[ \pi_t - \Delta q_t - \pi_t^f \right] + u_t; \quad \beta_1, \beta_2 > 0
\]

**Inflation equation (Philip’s curve)**:
\[
\pi_t = \alpha_1 \pi_{t-1} + \alpha_2 E_t \pi_{t+1} + \alpha_3 E_t \hat{\pi}_{t+1} + \alpha_4 \hat{\pi}_t + \alpha_5 \pi_t \hat{\pi} + \alpha_6 \hat{m}_t + \varepsilon_t;
\]

**Interest rate equation**:
\[
i_t = \psi_0 + \psi_1 i_t^f + \psi_2 E_t \hat{\pi}_{t+1} + \Theta^T Z_t + \nu_t
\]

A simple reaction function from the minimisation of the function subject to the constraints in the IS-curve, Philip’s curve and the interest rates equation can be described in simple terms as:

\[
i_t^M = \rho i_{t-1}^M + (1 - \rho) [\bar{F} + \gamma_\pi (E_t \pi_{t+m} - \bar{\pi}_t) + \gamma_y E_t \hat{y}_{t+m}];
\]
\[
\gamma_\pi, \gamma_y > 0; m, n \geq 0. \quad (15)
\]
An alternative version can be formulated as:

$$i_t^M = \rho i_{t-1}^M + (1 - \rho) [\bar{r} + \gamma_\pi (E_t \pi_{t+m} - \bar{\pi}_t) + \gamma_y E_t \hat{y}_{t+m} + \gamma_m m_t]$$  \hspace{1cm} (16)$$

We could also include excess money supply as:

$$i_t^M = \rho i_{t-1}^M + (1 - \rho) [\bar{r} + \gamma_\pi (E_t \pi_{t+m} - \bar{\pi}_t) + \gamma_y E_t \hat{y}_{t+m} + \gamma_m m_t]$$  \hspace{1cm} (17)$$

Where $i_t^M$ is monetary policy rate, $\bar{r}$ is long run real interest rate, $(r = i - \pi)$; $\rho$ indicates the degree of (positive) interest rate smoothing; and $\gamma_\pi$ and $\gamma_y$ are the relative weights placed by the central bank on the inflation and output gaps. The Taylor principle implies that $\gamma_\pi > 0$, so that a rise in expected inflation results in a proportionately larger response in the policy rate, $i_t$. Theoretical considerations suggest that $\gamma_y > 0$ because a rise in the output gap, defined as actual less long run or equilibrium output, is inflationary and prompts the monetary authority to raise the interest rate. Although many studies in the literature typically set $m = n$, there is no reason to do so a priori. $\sigma_t$ is a measure of exchange rate variability. However, Collins and Siklos (2004); Clarida, Gali and Gertler (1998, 2002), and Clarida (2001), find that while an augmented Taylor rule may be helpful empirically, the particular variable is either idiosyncratic to the country in question (e.g., a monetary aggregate for Germany) or does not fundamentally alter the general applicability of the conventional Taylor rule. Indeed, in much of the empirical literature, Taylor rules for closed and open economies are generally specified in the same manner.

Several observations can be made about the role of the exchange rate. As long as the BOU is committed to pursuing monetary policy as specified by the loss function in (5). The optimal rule suggests that the instrument of policy will always react, in some way, to the real exchange rate even if the central bank is a strict output targeter. The key point to recognize here is that it may be optimal for the central bank to respond to exchange rate movements in so far as any exchange rate shock affects its ability to reach its inflation target. Hence, for an inflation targeter the central bank will react to exchange rate shocks in the process of achieving the inflation target.

It is clear that the reaction of the instruments to the exchange rate is not related to fear of floating per se as the exchange rate does not appear in the loss function. For the exchange rate and money supply to directly enter the monetary authority’s loss function they must either: (a) be valued for their own sake over and above its impact on inflation and output; or (b) if valued because of their impact on inflation and output, for some reason, cannot be adequately captured in the specified model.

The deviations from steady state are generated by filtering using the HP filter. To determine what the CBR implied by the Taylor rule is at any point in time, we must know the neutral real interest rate, the output gap, inflation, and the Bank’s inflation target. Both the neutral real rate and the output gap are unobserved variables, unlike nominal interest rates or exchange rates. Because of their unobservable nature, there exists substantial disagreement on the precise definitions, and uncertainty over how well different measurement techniques capture the underlying concepts. This problem is not unique to the Taylor rule though, and is common to many other alternative formulae and models as well.

The BoU defines the neutral real rate as ‘the interest rate that would prevail if there were
no inflationary or deflationary pressure requiring the central bank to lean in either direction. When inflation is at target and the output gap is zero the Taylor rule recommends a nominal interest rate equal to the neutral real rate plus inflation. Although the concept of the neutral real rate is valid, there are significant difficulties in actually measuring it. The neutral real rate can be estimated in a number of different ways, but not very precisely. Moreover, the neutral real rate is unlikely to be constant through time; it is likely to vary depending on investor/borrower preferences, risk premia and other factors. Moreover, average interest rates over recent history may not be a good indication of what the current neutral real rate is.

Another difficulty associated with the Taylor rule is the estimation of the output gap. The output gap measures the difference between the sustainable productive capacity of the economy (potential output) and the actual level of production or demand in the economy (typically measured by Gross Domestic Product). In the absence of countervailing factors, a positive output gap (where demand exceeds the sustainable productive capacity of the economy) will give rise to inflationary pressures, while a negative output gap will cause inflationary pressures to subside.

Although the output gap is conceptually useful, it is difficult to measure. Measuring potential output is particularly problematic, given inadequacies in the data available and the inherent difficulty in identifying capacity constraints. Moreover, potential output growth is not constant through time – it varies in line with a range of factors, such as shifts in the labour force, productivity and technology.

There are also difficulties in estimating actual output accurately, due to lags in data becoming available and the measurement difficulties in various data series. Therefore BoU takes less account of the output gap. Instead it focuses more on inflation developments. Furthermore, as Orphanides (2001) suggests, these measurement problems require a cautious interpretation of the interest rate profile currently suggested by the Taylor rule for past years, as it incorporates information about potential output available now, but not at the time policy decisions were made.

In addition, although BoU targets core inflation (excludes commodities whose prices are volatile such as food crops and fuel or controlled e.g. utilities), economic agents’ decisions are driven by the headline inflation. However, headline inflation misrepresents the nature of underlying or persistent inflation in the economy, and is not necessarily the most appropriate measure of inflation for monetary policy decision-making purposes.

The weights are 0.7-0.8 for inflation deviation while the rest carry a weight of 0.1 each. The derived policy rates in Figure 5 indicate close values. However, for the period when inflation had deviated significantly from the target, the policy rate using inflation and output gaps are relatively higher and because this period was also characterised by significant deviation of exchange rate from the trend, the policy rate including the exchange rate deviation is equally close. It is only when money supply is included that a noticeable lower policy rate is derived. Overall, deriving policy rate using inflation deviation from the target, output gap and exchange rate volatility seem to be the most plausible approach inflation is given the highest weight.
5. PERFORMANCE OF THE INFLATION TARGETING LITE (FLEXIBLE INFLATION TARGETING)

Monetary policy implementation is about steering the short end of the yield curve, which, together with adequate communication on future policies, impacts on medium and long-term interest rates via the expectations hypothesis of the term structure of interest rates. Because of the lags in the effects of monetary-policy actions on aggregate demand and inflation, the BoU cannot affect current inflation and output. Therefore, the BoU’s monetary policy has to be guided by inflation forecasts. However, CBR is not exclusively set to bringing inflation back to target, but also to take into account the impact of the interest rate on output and exchange rate i.e. the inflation-targeting regime is flexible.

The BoU sets its policy rate and provides liquidity according to the implied liquidity needs of the financial sector to steer short-term money market rates. The BoU actions anchor economic agents’ expectations about the future path of other interest rates in the economy and subsequently, the monetary policy stance is transmitted through the money market yield curve and ultimately affecting other segments of the economy (Woodford, 2003). The CBR is the standard reference rate for the unsecured money market, which also serves as the benchmark for the pricing of government securities and determines interest rates charged by the
commercial banks. In this regard, the interbank money market plays a crucial role for credit market conditions and interest rates and, hence, for the effectiveness of monetary policy and its transmission to the overall economy.

The CBR is set as a corridor, which creates an incentive for the banks to even-out deficits and surpluses in liquidity between one another. When the 7-day interbank rate rises to the upper bound, BoU offers to the interbank market reverse repos and when interbank rates decline towards the lower bound, BoU offers to the interbank market repos. All repo transactions are done against collateral. Accepted collateral is interest bearing government securities. Open market operations are a key instrument for the realization of the BOU’s monetary plans and for the banking system liquidity management. The attainment of the targeted level of CBR is based on periodic tenders for the supply/withdrawal of liquidity to/from the banking system. The daily volatility of the demand for central bank’s reserves is solved by the regular supply/withdrawal of liquidity through reverse/standard repo operations. The frequency and maturity of such tenders reflect the ratio between the volatility of factors influencing the aggregated volume of reserves of banks with the BOU and the average level of these reserves.

In this framework the main monetary policy instrument is the repurchase agreement. The operational framework rests in steering of the interest rate at which the banks can finance the deficit or invest the surplus in their payment flows for 7 days, i.e. the 7-day interbank interest rate. The fact that the BoU can influence the interest rate on the interbank money market is mainly due to its ability to determine the terms for and scope of borrowing and lending at the BoU.

**Implementation of monetary policy**

At the operational stage, the BOU implements its policy by influencing the interest rate level in the money market. It fixes a target range for the 7-day interbank rate with a band, normally, this range is 400 basis points wide with the CBR as the midpoint. The BOU’s monetary policy operations are to ensure that the 7-day interbank rate remain close to its policy rate. By announcing a range for a 7-day interbank interest rate, rather than a point target, the BOU has more leeway to react flexibly to exchange rate shocks or sudden changes in liquidity distribution without signalling an immediate change in its basic policy orientation.

The mechanisms can be described as follows: The BoU influences the commercial banks’ balance on their deposit accounts at the BoU by buying or selling securities. If the BoU wants the 7-day interbank rate to decline, it issues reverse repos. This is often described as providing the market with liquidity via open market operations. This increases commercial banks’ total balance at the BoU and therefore results in the 7-day interbank rate to decline. BoU issues repos until the 7-day interbank is close to the CBR.

Through the steering mechanism, the BoU aims to keep the market rates at the short end of the yield curve, the 7-day rate, close to the Central Bank Rate (CBR). The 7-day rate in turn affects the interest rates faced by the general public, and thereby activity and prices in the economy. So, the CBR expresses the level at which the BoU wants the 7-day rate to lie. Interest rates with a slightly longer duration, for instance 3 months, are determined in the financial markets, partly by expectations of what the CBR will be on average during this period. Banks’ lending rates to households and companies and interest rates on securities with different
durations are affected therefore by both the actual and expected CBR. In the slightly longer term there is greater uncertainty and it may be difficult to form an opinion of the future CBR. The long-term inflation expectations then play an important role. Here the central bank can mainly have an effect by conducting a credible monetary policy. Long-term interest rates are also affected by the economic outlook and by long-term growth. The resulting interest rate changes have an effect on inflation and output via many different channels. For instance, lower interest rates normally make it more attractive to consume as it makes it cheaper for businesses to finance investments, and for households to borrow for consumption. As a lower CBR lowers the cost of borrowing, it increases household consumption and corporate investment and thereby also total demand in the economy. This in turn means that production growth increases and resource utilisation is higher.

To judge the performance of this monetary policy framework so far, the first reflection should be whether the CBR has closely tracked the 7-day interbank rates and subsequently other interest rates since the main monetary policy instrument is the interest rate. Looking at Figure 6, it is clearly evident that the 7-day interbank has oscillated around the upper bound of the CBR and occasionally above the upper bound of the CBR. In the period to April 2012, because of the exchange rate depreciation concerns, BoU could not supply the required liquidity to bring the 7-day interbank rates around the CBR. The trend of the 7-day rate is consistent with the monetary policy stance in the period since July 2011.

Changes in CBR must be transmitted to other interest rates for this framework to be effective. As evident in Figure 7, trends in other interest interests, with exception of lending interest rates since the mid-2012, indicate response to the CBR. The changes in CBR implicitly means changes in the BoU’s supply of funds to the interbank money market, which results in changes in the interbank interest rates. This in turn affects interest rates paid by commercial banks on deposits and those charged on loans, albeit to varying degrees. Commercial banks decisions regarding the interest rates paid on loans and deposits will eventually have an impact on the expenditure and investment behaviour of borrowers and deposit holders and thus real economic activity. Between June 2011 and March November 2013, the correlation coefficients between the CBR and overall interbank rates, interest rates on loans and time-deposits, and 364-day Treasury bill yields were 0.91, 0.7, 0.89, and 0.85, respectively.
The ultimate target of monetary policy is to bring down inflation and stabilize it around the 5 percent in the medium term. In large part due to tight policy stance, core inflation has come down gradually, from a pick of 30.8 percent in October 2011, to 5.8 percent in April 2013 as shown in Figure 8.

Overall the implementation of the ITL has yielded positive results. As a basis for setting CBR, a modified Taylor rule framework is useful. In this case, four issues need to be addressed. First, the formulation must be able to allow BoU to consider how far inflation forecasts will be away from the target so that the BoU can explicitly decide what policy actions to take now. Second, since exchange rate stability is cardinal for BoU, BoU has to incorporate stabilisation of the exchange rate so as to determine its monetary policy actions. Third, it should provide positive real interest rate. Lastly, that rate which the BoU will decide on must be an effective rate which is transmitted to the short end of the market.

The parameters in the equation are imputed to reflect the weight or its attitude towards the short-run trade-off between inflation, money, output and exchange rate movements. If for example, the risks to inflation are high, weight on inflation is raised. The discretion factor would change as underlying macro conditions change. Even if BoU does not have...
an explicit concern for output variability, the output gap is one of the determinants of inflation and hence has an important impact on monetary policy, along with other variables. This relationship results automatically in a countercyclical monetary policy stance, unless other factors override it. Thus, even if monetary policy does not have an explicit growth objective, the state of the economy relative to potential influences the inflation outlook and hence monetary policy responses.

6. Conclusion

There have been several significant changes in Uganda since the 1990s in the design and conduct of monetary policy. Broadly, there have been two significant changes in that impacted on how Uganda conducts monetary policy: first, the move from fixed exchange rate regime to more flexibility, which allowed greater monetary independence. Second is the focus on price stability as the monetary policy primary objective. In most of the 1990s, monetary policy analysis worked on the assumption that the money supply was exogenously determined by the actions of the central bank in controlling the monetary base. Because banks must maintain a minimum level of reserve assets, the supply of base money restricted their deposit-holding to some multiple of this base, giving the BoU considerable leverage over monetary conditions. In the 1980s and early 1990s, this approach helped to anchor inflation, largely because inflation was due to monetisation of the fiscal deficits.

Monetary policy rests on the relationship between the rates of interest in an economy, that is the price at which money can be borrowed, and the total supply of money. Monetary policy uses a variety of tools to control one or both of these, to influence outcomes like economic growth, inflation, exchange rates with other currencies. The efficacy of the monetary policy depends on the ability of policymakers to make an accurate assessment of the timing and the effect of the policy on economic activities and prices. Therefore, to shove monetary policy with the appropriate force and in the right direction policymakers need to have a clear understanding of the propagation mechanism of the monetary policy shocks and the relative importance of the various channels in affecting the real sectors of the economy.

Inflation is in large part driven by expectations and therefore the success of monetary policy rests on how the central bank’s credibility anchors inflation expectations. If the central bank is not credible, its policy rate announcements would be non-important and irrelevant to private agents’ inflation expectations.

The monetary policy framework requires using interest rate to signal and influence macroeconomic activity like prices and inflation, or output, or sometimes designated monetary aggregates. But inflation and output are not variables over which the BOU has direct control, nor is the quantity of deposit money, at least over the horizons considered here. Instead, BOU will exert whatever influence it has over any or all of these macroeconomic magnitudes via its setting of a short-term interest rate.

In choosing an appropriate monetary policy framework in a changing economic and financial environment, the central bank needs to examine further the issues related to the ability to forecast inflation reasonably well over the medium term, the nature of transmission mechanism of monetary and exchange rate policies on inflation, the role of financial innovation and the stability of
money demand, a quantitative nature on linkage between instruments and targets of monetary policy, a degree of independence of monetary policy, the nature of the trade-off between the attainment of inflation and other macroeconomic objectives, the nature of shocks affecting the economy in the near term. Central banks in the East African Community and in many other sub-Saharan Africa countries are contemplating adoption of appropriate monetary policy frameworks suitable for rapidly changing domestic and international economic environment — when different economic and monetary structures tend to become tightly linked and probably more sensitive to sudden domestic and international shocks.

The inflationary consequences of rising commodity prices represent an important challenge for monetary policy. Rising commodity prices result in an increase in inflation, but at the same time have negative consequences on economic activity. Their implications for monetary policy are less straightforward than those of demand shocks. For example, a positive demand shock, that increases inflation and output, calls for monetary tightening in order to stabilize both. However, the implications of commodity price shocks are less clear-cut.

Inflation rises through the direct effects on gasoline prices and indirectly through a rise in costs. In addition, an oil price shock is analogous to a negative productivity shock. Therefore inflation rises and output slows down. Although in principle one could think that the implications for monetary policy are ambiguous, they are not. Some degree of accommodation may be needed, and this depends on the output effects, and the size and duration of the shock, but the direction of monetary policy is to reduce the monetary impulse.

In the particular case of energy, the first thing that comes to mind is that it is a key intermediate good, and hence, a rise in oil prices should have an impact on the sticky price sector, so stabilizing headline inflation may prevent excessive second round effects. In the case of food three aspects are worth to mention. First, many food products, for example grains, are intermediate inputs. Second, despite agricultural commodities having deep world markets, there are enough distribution costs that make difficult to think of those goods as having fully flexible prices. Indeed, distribution costs have been one of the main reasons why there is only partial pass-through from exchange rates to domestic prices. Finally, food prices are very important in the consumption basket, and therefore they have significant effects on other prices pressures, which also impinged on the overall price level. For all of these reasons, BOU cannot ignore for ignoring commodity prices from the central bank target.

Overall, BOU’s monetary policy stance remains generally conditioned by the growth-inflation balance, the outlook for growth-inflation in a forward-looking context and an assessment of macroeconomic risks. Essentially, monetary policy aims at attaining high growth in a non-inflationary manner. But at times high growth in excess of potential growth could trigger inflation putting the sustainability of the very growth path to risks. Hence, monetary policy tends to do a careful balancing act so that it is not too accommodative of growth in excess of its potential and at the same time not too stimulative of inflation.

Inflation driven by supply side factors is a challenge for an appropriate monetary policy framework. Food and energy account for a relatively larger share of the consumer price index. A sharp rise in prices of these
commodities not only raise short run inflation, by virtue of their high weight in the consumer price index, but also can lead to a sustained rise in the inflation rate if it raises inflation expectations. Second, to the extent that supply shocks are accommodated by monetary policy they give rise to demand-driven inflationary pressures. There is no consensus on how monetary policy should respond to a permanent supply shock. An important question, then, is to ask whether the cost of monetary tightening (from a reduction in aggregate demand) can be justified by the benefit of achieving low and stable prices. This involves a critical assessment of the nature of a shock and economic conditions. If BOU were to wait until the price movement is actually afoot before applying remedial measures, it would be too late. A policy of benign neglect could fuel inflation expectations and trigger a price spiral. True, BOU may not respond to temporary supply shocks such as weather disruptions or unanticipated supply hiccups. Events today, however, are far more complex and cannot be easily ascribed to domestic or global supply constraints alone. Evidence points to a confluence of cyclical and structural factors; domestic and global trends; and supply and demand shocks mutually reinforcing each other. The key to anchoring future inflation expectations is to prevent second-round price effects from burrowing through the economy.

The economy faces considerable obstacles to growth amid weaker global expansion, inflationary pressures originating from supply side and the possible spike in fuel prices. Current account deficits, the result not only of weak export earnings but also domestic private demand remains a concern. While the short-term risk of a sudden stoppage of capital inflows sparking a currency and balance-of-payments crisis is low, addressing these large external imbalances is key for reducing external vulnerabilities. As external growth drivers are weak, domestic demand expansion and policy have become more relevant to the growth outlook. Fiscal position is weak and although foreign currency reserves are still strong, the rapid increase external deficits suggest that they are becoming structural and they will eventually become unsustainable. Future growth remains contingent on building diversified productive capacities with reduced dependence on rain fed agriculture. Investment in infrastructure, human capital, and reform of government spending are key to high rates of sustainable growth.

Policy trade-offs are difficult because of a combination of subdued growth, rising inflation and the need to finance a growing current account deficit. Raising policy rates may prevent excess currency depreciation and may sustain the financing of the current account deficit, but this move would undermine growth. Vice versa, if sustaining growth becomes the key policy objective and monetary condition is not tightened (or are even eased), the currency may depreciate too much and cause excessive inflation; low rates will also make it harder to finance the growing external deficit that requires large capital inflows. To maintain an easier monetary policy that boosts flagging growth while not causing a massive currency depreciation, capital controls on outflows and subsidy incentives for capital inflows may become more prevalent as a means to contain depreciation pressures.

Inflation targeting has established itself as the dominant framework for monetary policy decisions. With its growing academic popularity, and an increasing number of central banks opting for inflation targeting
frameworks, the definition of what constitutes an inflation-targeting regime has become more flexible and perhaps, to some extent, blurred. At the same time, a new academic consensus about ‘best-practice’ and ‘principles-based’ monetary policy emerged. It marries a firm long-term anchor for nominal stability, rooted in the original ideas behind inflation targeting, with short-term flexibility, based on more discretionary and pragmatic approaches to monetary policy. Arguably, the BOU’s monetary policy framework represents a ‘real-life’ example with a successful seven-year track record of a monetary policy framework encompassing a firm nominal anchor, but which also emphasises the need for flexibility to respond adequately to real and financial shocks. It thus reflects, to a considerable degree, the emerging academic consensus on ‘best-practice’ monetary policy and may serve as an interesting case study of a policy aiming at an intermediate position between full discretion and rigidly defined short-term inflation targeting.
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