Chapter 7

Building a Kenyan Monetary Regime for the 21st Century

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1. Introduction

This chapter asks: what sort of monetary framework is appropriate for Kenya as it seeks to establish itself as a full-fledged emerging market economy in the 21st century? Now is a particularly good time to consider the choices facing the authorities, and the Central Bank in particular, as the transformation of the macroeconomic landscape in Kenya, 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. As recently as the early 1990s, the prevailing orthodoxy across much of Africa was that monetary policy could and should be deployed as a purposive instrument in the broader development process. Thus, Honohan and O’Connell (2008) describe post-Independence monetary frameworks in Africa as being largely geared towards the (cheap) financing of government activities, the extension of subsidized credit to favoured sectors and a 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 African monetary regimes neither delivered low inflation nor did they post sustained gains on the other policy objectives. This history is broadly consistent with the post-Independence monetary history of Kenya.

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 (often in the context of IMF-supported stabilization programmes). As a consequence, although a number of African countries still remain in the grip of severe macroeconomic instability, most African central banks today are under less

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1 Masson and Pattillo (2005) offer a similar diagnosis of the post-Independence monetary history of Africa.
pressure to accommodate large domestic fiscal deficits, while the dismantling of systems of financial repression, the widespread elimination of exchange controls and a tendency towards the adoption of flexible exchange rates has opened up the space for genuinely independent central banks to function.

To frame our discussion, we start, in Section 2, by describing the characteristics of the monetary frameworks in floating exchange rate regimes such as Kenya, focusing specifically on monetary-targeting and inflation-targeting. We pay particular attention on the latter, however, explicitly recognizing the strengthening consensus view that formal inflation targeting (IT) offers a coherent framework for the conduct of monetary policy, not only for industrialized and established emerging market economies but also, with some modification, for pre-emerging market economies such as Kenya (see O'Connell, 2010). This consensus view has, of course, been challenged recently in some quarters by those who see narrow IT frameworks as culpable in contributing to the global financial crisis. Nonetheless, we concur with the dominant view that the basic architecture of the formal inflation-target framework is sound and is likely to remain in place in the future. Thus, this chapter presumes a move in this direction by the monetary authorities in Kenya (and elsewhere in the EAC): we therefore concentrate on the challenges faced by the authorities as they seek to build an IT framework that is consistent with supporting sustained investment and growth in the real economy. The key message from this chapter is that the authorities should be focused on developing the institutional structures that will support this anchor to domestic inflation.

Section 3 then provides a brief review of the conduct of monetary policy since the mid-1990s, focusing principally on the quest to establish price stability, while Section 4 returns to a set of practical policy and design challenges that, we feel, confront Kenyan policymakers as they seek to develop their monetary policy framework. A number of the issues discussed in this chapter dovetail closely with those addressed in Chapter 8 which directly addresses the design of monetary policy in the context of an increasingly open capital account where concern about nominal and real exchange rate volatility figure large.
2. **Choosing a monetary regime: some considerations**

A monetary regime defines the institutional framework to deliver monetary policy and the constraints under which monetary policy makers operate. Today, most governments, and certainly most central bankers, would subscribe to the view that the role of monetary policy can be reduced to three core functions. The first, overriding, objective is the delivery of low and stable inflation. Exactly how low this should be is an unresolved question, especially in developing countries, but crucially, whatever the target, the prevailing consensus sees this function as being best pursued through some form of policy rule. The case for rule-based policy is two-fold. First, as argued by Friedman, policy rules (in his case a constant growth rate for money) are desirable when the authorities don’t have the information or capability to know when or how much to stimulate or dampen the economy. Without this capacity, activist stabilization policies can end up exacerbating the very economic volatility they seek to reduce. The second is that rules tie hands and help minimize or eliminate the incentives of the monetary authorities to operate in a time-inconsistent manner.

The second function, conditional on targeting inflation, is to moderate fluctuations in the path of domestic output by judicious tightening or loosening the stance of monetary policy as circumstances dictate. This is fundamentally a discretionary function and hence to the extent that the output stabilization objectives may run counter to inflation stabilization objectives and *vice versa*, this potentially sets up a tension between rules and discretion at the heart of

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2 This Section of the paper draws extensively on papers presented by two of the authors at a conference on monetary frameworks and inflation targeting hosted by the Central Bank of Nigeria in Abuja, Nigeria in January 2008. See O’Connell (2008) and Adam (2008).

3 The notion of time-inconsistency dates back to the Nobel-prize winning work of Kydland and Prescott (1977) subsequently developed in the context of monetary policy by Barro and Gordon (1983). The essential idea is that when the authorities set their policy instrument only after the private sector has formed its expectations about inflation (possibly based on some prior announcement about the stance of policy) they will have an incentive to renege on their announcement. Specifically, a monetary authority concerned about output as well as inflation will have an incentive to announce a commitment to low inflation and then renge on this commitment to exploit the short-run Phillips curve so as to boost aggregate demand. Anticipating this incentive, the initial policy announcement will no longer be credible and private sector expectations will adjust accordingly. This creates an inflation bias, locking the economy into a higher long-run inflation rate. In this situation, to make their announcements credible and eliminate, or at least reduce, the inflation bias, the monetary authorities may seek to commit to a fixed and verifiable policy rule.
monetary policy. It is this tension that a coherent monetary framework must resolve. Contemporary monetary theory sees the reconciliation of these objectives emerging from a system of ‘constrained discretion’ such as embodied in an inflation targeting framework, where the institutional constraints defining the credible public commitment to an inflation target creates the space for the authorities to pursue output stabilization. The management of this trade-off between inflation and output stabilization is particularly challenging in small open economies subject to large supply-side shocks, such as Kenya. We consider this issue in some detail in Section 4.

The final function of monetary policy is less direct. It is to support the smooth functioning of the payments system and the financial system more generally so as to promote the efficient market-based allocation of credit and pricing of risk in support of efficient investment and growth. As above, this objective may not necessarily be consistent with price and output stabilization and, again, a coherent monetary framework must reconcile and prioritize these competing objectives. We say little about this function in this chapter; later chapters in the volume focus specifically on issues of capital market development.

2.1  Money-targeting versus inflation-targeting in emerging markets

Virtually all contemporary monetary regimes can be thought of as ‘inflation targeting’ in the strict sense that a central -- if not the dominant -- objective of monetary policy is to establish a credible anchor for domestic prices. Frameworks differ in terms of how they operationalise this objective, in other words how they choose the nominal anchor. This choice is not unconstrained, however; rather it has implications for how the authorities address the other concerns competing for their attention. This tension is encapsulated in the notion of the ‘impossible trinity’ or ‘trilemma’ which states that beyond the short-run no country can simultaneously maintain an open capital account, target the exchange rate and pursue an independent monetary policy. One of the three must be abandoned even though each is

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4 The nominal anchor is some quantity or price in the economy targeted by the monetary authorities. The anchor determines the path for average prices around which all relative prices are determined and in the long-run the growth rate of nominal aggregates (nominal wages, nominal interest rates) will converge to the growth rate of the anchor (plus any real growth in the underlying real variables).
desirable in its own right: open capital accounts to the extent they support the efficient global allocation capital to high-return investment opportunities; exchange rate targeting to support trade and sustain a stable external value of the currency; and an independent monetary policy to pursue domestic output stabilization objectives.\(^5\)

Although debate continues on the case for limiting short-run cross-border capital flows either through tax or other restrictions, and even though this debate has, if anything, become more strident in the wake of the global financial crisis, it is reasonable to expect that capital flows have become permanently more responsive to cross-border return differentials (see Chapter 8 for evidence). Hence for most countries, including those of East Africa, the resolution of the trilemma has become a simple choice over the nominal anchor; does it make better sense in terms of the other objectives of monetary policy to fix the exchange rate to a reference currency and adopt that country’s anchor (and thus its monetary policy) or to let the exchange rate float and use domestic policy instruments to anchor inflation? At least since the early 1990s, Kenya has chosen the latter path and has used the growth of broad money as the anchor.

### Money-targeting

The rationale for money targeting as an anchoring mechanism builds on two assumptions, both of which are verifiable. The first is that the manner in which the private sector manages its wealth portfolio, of which the demand for money is one crucial element, induces a predictable relationship between money and prices. If this relationship is stable, then a policy that targets the growth of nominal money in has some prospect of stabilizing inflation at desired levels and at reasonable cost in terms of other objectives. Specifically, starting with the definition of the velocity of circulation \(v=P.y/M\) where \(P\) is the price level, \(y\) a measure of real economic activity and \(M\) broad money, then if the change in velocity and the level of

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\(^5\) To illustrate, consider the economy being subject to positive external shock which raises the *ex ante* return to domestic assets (this may be an exogenous fall in the country risk premium or some technology shock that improves prospects in the domestic economy). With an open capital account, foreign private capital will flow in, thereby generating an incipient appreciation of the currency. Attempts to stabilize the exchange rate will draw the central bank into foreign exchange intervention, thereby undermining the autonomy of domestic monetary policy through the effect of intervention on the domestic money stock. Restoring monetary autonomy through bond sterilization may work but only by driving up domestic interest rates relative to world rates, thereby exacerbating the original pressure on the exchange rate. Eventually one of the objectives must be abandoned.
real economic activity can be predicted, these can be used to generate an ‘inflation-consistent’ path for broad money growth. Letting a hat (^) denote the growth rate of a variable, \( \pi \) the rate of inflation, the superscript \( p \) for projection and a star (*) for a target, we obtain the following relationship relating the intermediate target (M) to the ultimate objective (inflation), given projections about the demand for real balances (the term in parenthesis)

\[
\hat{M}^* = \pi^* + (\hat{\gamma}^p - \hat{\nu}^p).
\]  

(1)

The second assumption is that there is a stable and exploitable relationship between the intermediate target, money, and the central bank’s policy instrument, which in the case of Kenya and most other African economies, is currently base (or reserve) money, denoted here as \( H \), which consists of the currency in circulation in the economy plus the reserves of the banking systems lodged with the central bank. This relationship, the money multiplier, is defined as \( m = M/H \). Using this expression we can re-write (1) as a simple control rule linking base money growth to the target inflation rate conditional on the evolution of the real demand for base money (as proxied by the growth in output and velocity) and the money multiplier

\[
\hat{H}^* = \pi^* + (\hat{\gamma}^p - \hat{\nu}^p - \hat{m}^p).
\]  

(2)

Assuming the stability, or at least predictability, of \( m \), ensures that a given intermediate target for \( M \) (from equation (1)) implies a path for \( H \) and a corresponding constraint on the evolution of the central bank’s balance sheet.

Placing \( H \) on this path is the central bank’s task. The asset-side counterparts to base money on the bank’s balance sheet are net international reserves (NIR) and net domestic assets (NDA), principal amongst which are central bank claims on government.\(^6\) Conventionally, and certainly under IMF-supported programmes, the path for NIR is bounded below by the

\(^6\) Choices over the path of NIR will have implications for the exchange rate and the two together influence the local currency value of this component of base money. This creates a direct link between net foreign capital inflows, the authorities’ response to these and the pursuit of money targets. To the extent that the inflows drive actual base money and broad money from targets, this places additional pressure on monetary policy instruments.
need to maintain sufficient foreign exchange liquidity to meet unanticipated shocks to the balance of payments. When this constraint binds, overall control of the growth in reserve money devolves to setting a ceiling on the growth of NDA, which in turn are dominated by central bank lending to government. Monetary targeting, in this sense, therefore is a program built around quantitative money supply targets that constrains fiscal choices (it also limits the extent to which foreign reserve accumulation, which may be undertaken to meet an exchange rate objective, can proceed un-sterilized since at the margin, any growth in NIR needs to be offset or sterilized by a corresponding reduction in NDA to satisfy a given target for reserve money).

**Inflation-targeting**
Inflation target pursues the same fundamental objective but here the nominal anchor is expected inflation. The instruments at the disposal of the central bank (be they interest rates or quantitative instruments) are set not to influence a tangible quantity or price but rather to directly influence the private sector’s expected or forecast rate of inflation at some horizon. The rationale is that future expected inflation feeds into current price and wage setting behaviour; a credible inflation target thus leads to target-consistent price and wage-setting behaviour today, thereby validating the forecast. The essence of IT is that the authorities’ policy actions and announcements credibly influence the evolution of the private sector’s inflation expectations. Three elements define contemporary IT regimes.

The first is an explicit public commitment to a target inflation rate, defined either in terms of overall ‘headline’ inflation or ‘core’ inflation, where the latter excludes specific items such as food and fuel whose prices are determined principally by supply-side effects or world market conditions (we return to this issue below) This public commitment to the target establishes as the focal point for public scrutiny the inflation rate itself, rather than an intermediate indicate such as money, whose measurement is difficult and whose intrinsic relevance may be obscure.

Second, the policy instrument (typically the policy interest rate) is set to guide the economy towards this target on the basis of a forward-looking reaction function of the form
Equation (3) is known as a Taylor Rule after John Taylor (1993) who observed that Fed policy after 1980 was well approximated by a reaction function of this form. Here \( r \) is the long-run equilibrium (or neutral) real interest rate, assumed to be constant and defined as the rate that would equate aggregate demand with aggregate supply if wages and prices were flexible, and \( E\pi_{t+i} \) is expected inflation \( i \) periods in the future.\(^7\) Policy responds both to deviations of the inflation forecast from the target, and to deviations of output from its potential (i.e. to the output gap). There is no requirement that the feedback parameters, \( \gamma_1 \) and \( \gamma_2 \) are equal. Rather the parameter values the nature of the transmission mechanism and the relative weights given to inflation and the GDP gap in the monetary authority’s preferences. However, achieving the inflation objective does require a positive coefficient on the inflation deviation term in Equation (3). This is the so-called ‘Taylor principle’ which says that holding the output gap constant, the monetary authority must respond to an increase in observed inflation by increasing the expected short-term real interest rate \( i_t - E\pi_{t+i} \) (see Woodford 2003).

A key distinction between money-targeting and inflation-targeting approaches is that there appears to be no role for money in the latter. However, even though the Taylor Rule is written in terms of a policy interest rate, it could equally have been derived in terms of reserve money (by using an expression for the demand for money to substitute reserve money for the interest rate). In other words, the same ultimate policy reaction could be accomplished either directly, by controlling the interest rate, or indirectly, by controlling the supply of central bank balances. As other countries, such as Mexico, have shown, a fully consistent IT framework can be implemented with quantity of reserve money serving as the policy

\[ i_t = r + E\pi_{t+i} + \gamma_1 [E\pi_{t+i} - \pi^*] + \gamma_2 [y_t - \bar{y}_t] \]  

\(^7\) How-forward looking this rule should be reflects the underlying optimal lag in the monetary policy transmission (so that expected inflation developments are met with timely policy action \( i \) periods earlier) which in turn reflects, amongst other things, the extent to which economics agents form their price expectations on a forward-looking basis as opposed to relying on a backward-looking or ‘rule of thumb’ basis. Maturu et al (2007) derive results for Kenya suggesting that forward-looking expectations formation weakly dominates ‘rule of thumb’ methods.
instrument. Indeed, unavailability of a policy interest rate does not rule out the setting of available policy instruments to target expected inflation to whatever degree desired.

The third element is a structured approach to deliberation and communication on the part of the central bank. In part this requires that the relevant inflation index is publicly understood and that the public has confidence in its measurement. But more generally, the objective is make public, in a timely fashion, the central bank’s own information and analysis to ensure that its actions are verifiable and its own expectations of future developments are revealed, thereby resolving the problems of asymmetric information which can create incentives for time-inconsistent behaviour on the part of the monetary authorities.

In practice, this has seen IT central banks publish the evidence and analysis that informs these rate-setting decisions; publish the voting records of the members of interest-rate setting committees; and devote substantial resources to public information and direct engagement with key stakeholders. This comprehensive communication strategy applies both when inflation is on target and, a fortiori, when it is off-target, in which case additional disclosure requirements may be placed on the central bank to explain deviations and specify remedial action to return inflation to target.\(^8\) Important in establishing the credibility of this structure is the reliance on independent external membership of key decision-making bodies and the pressures these bodies exert on the national statistics offices to produce timely and accurate data.\(^9\)

When successful, these characteristics -- the explicit inflation target, the ‘Taylor-principle’ and the associated public disclosure and explanation of policy decisions and outcomes -- deliver the credibility required to defuse the time-inconsistency problem inherent in monetary policy by validating the belief in the private sector’s mind that the central bank will (eventually) bring inflation back on track and will do so in a transparent manner. Moreover,

\(^8\) The Bank of England Governor’s obligation to write an ‘Open Letter’ to the Chancellor’ (Minister for Finance) if inflation strays outside its target range is a good example of this approach.

\(^9\) Members of the Bank of England MPC have also stressed the importance for policy credibility of developing a ‘culture of intellectual dissent’ in which the central bank governor and his or her executive can find themselves in a minority on interest rate decisions.
theory suggests, as inflation expectations firm around the target, the pass-through from current price developments to expected future inflation reduces, allowing the authorities to use monetary instruments to pursue other ultimate targets of policy, which may include competitiveness or stabilization of short-run output around its potential.

The text-book description of full-fledged IT regime sets the bar high and in practice only a few countries demonstrate all these characteristics. Stone (2003) has coined the term ‘Inflation Targeting Lite’ (ITL) to describe countries – and Kenya would count amongst these -- whose frameworks are gravitating towards an IT configuration but where operationally the conduct of monetary policy may still lack clarity of objectives and transparency of communication. In such regimes the authorities often announce a target for inflation and publically commit to a flexible exchange rate but in practice they tend to actively manage the exchange rate, often to the point where the prioritization of the competing constraints of independent monetary policy and the desire to influence the path of the exchange rate is obscure.10 Moreover, structures for communication and verification are only beginning to be established; domestic asset markets remain relatively thin and central bank balance sheets are often still too weak to allow effective deployment of interest-rate based policy instruments; and, in some cases, core analytical capacity – in inflation forecasting and developing robust models of the transmission mechanism, for example – are only just being built.

2.2 Summary and the challenges of translating IT for low-income countries

The spread of inflation targeting after 1990 was influenced in large measure by the successful performance of adopters (see Mishkin and Schmidt-Hebbel, 2007). No inflation targeting country has yet abandoned this approach to conducting monetary policy, while more and more countries, in addition to those already classified as pursuing IT-Lite regimes, are moving closer to embracing IT frameworks. This remains the case even after the approach came under heavy criticism from some quarters for being responsible, in part, for the global

10 Low income or pre-emerging economies are not alone in this respect. As Edwards (2007) and Blanchard et al (2010) note, many industrialized countries act in a very similar manner, declaring an inflation target but actively targeting the path for the exchange rate. What matters, in the end, appears to be how these potentially conflicting actions are reconciled.
financial crisis that erupted in 2008. Critics argued that the narrow mandate and relatively short horizon over which targets were defined led policy-makers to pay insufficient attention to asset price inflation, to excessively lax monetary and credit conditions, and to the build-up of financial imbalances that preceded the crisis. From this followed calls for reform, ranging from the operational, for example, that central banks should seek to ‘lean against the wind’ of asset-price movements, to the radical redesign of the framework of monetary policy, including even calls to abandon inflation-targeting regimes in favour of more discretionary regimes (there have been no sustained calls, however, for a return to monetary targeting).  

Although aspects of the critique have grabbed headlines, the case against inflation targeting has not attracted widespread support in academia or from central banks themselves. On the contrary, the prevailing view – certainly amongst industrialized countries and mature emerging market economies – is that the essential framework of inflation-targeting remains a robust and pragmatic solution to the problem of assigning responsibility for inflation control and—subject to that—for the stabilization of output around the natural rate. Central banks remain the appropriate institution and interest rates the appropriate instrument. In the context of the crisis, however, the key point is that inflation control and output stabilization were only part of the assignment problem and while operational errors were probably made in the conduct of monetary policy at this time, the crisis owed much more to failures elsewhere, specifically in the areas of financial-sector regulation and fiscal policy. As the Governor of the Bank of England, Mervyn King, has noted: ‘...inflation targeting is a necessary but not sufficient condition for stability in the economy as a whole. When a policy is necessary but not sufficient, the answer is not to abandon, but to augment it’ (King, 2009).

This confidence is probably well-grounded. But we must also recognize that inflation targeting is the outcome of industrialized countries’ generally unsuccessful attempts to address their own specific stabilization problems the late 1970s and 1980s, following the collapse of the Bretton Woods exchange rate arrangements. The intellectual underpinning and, indeed, the implementation of IT regimes thus reflects a set of economic structures and

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11 See White (2009) for a flavor of this critique.
institutions very different from those in developing countries and especially low-income countries.

Making a robust case for adopting IT in Kenya, and for other low-income countries, therefore obliges us to address a number of key issues. O’Connell (2010) outlines some of the key challenges: “Can the framework be deployed successfully when supply shocks are dominant and the GDP gap is difficult to measure? Does it make sense to target an average inflation index when exchange rates, food prices, and public-sector prices (utilities, fuel, and public sector wages) play a much more totemic role in the public eye? Given imperfect capital mobility and the importance of export promotion and competitiveness, should exchange rate targets still play a more prominent role that is admitted under conventional inflation targeting? What operational policy rules can be used when there is not a strong transmission from policy interest rates to aggregate demand, and where central banks still use balance sheet instruments rather than interest rates?”

We take up some of the challenges in Section 4, but before doing so, we provide some context by offering a brief description of monetary conditions and developments in Kenya over the last decade.

3 Monetary Policy in Kenya: recent performance and institutional change

3.1 Macroeconomic stabilization

The early 1990s represented a watershed for the Kenyan economy. The impetus towards economic liberalism, first laid out in the famous Sessional Paper No. 1 of 1986 which saw Kenya turn its back on its post-Independence dirigisme, gained momentum as a sequence of events forced the pace of reforms. A standoff with the IMF in 1992 and the general hardening of donor attitudes towards corruption -- responding in particular to the recently-exposed Goldenberg scandal -- saw the external budget constraint tighten substantially and prompted government to move rapidly to establish fiscal control and allow the exchange rate to float relatively freely. By the mid-1990s, de jure capital controls had been substantially eliminated
(Bandiera et al, 2008) These changes in the policy regime laid the foundations for a decade of solid if not spectacular performance lasting until the end of 2007. Output growth increased from around 2% per annum in the late 1990s to around 4% in the first half of the 2000s and to close to 7% per annum in 2007. Underpinning this was a monetary framework which was successful in taking advantage of the ‘great moderation’ in the global economy to bring domestic inflation back under control. This regime – which remains substantially in place today -- was configured rather conventionally around a broad-money anchor, with reserve money functioning as the operational target.

**Figure 1: Inflation**

With this framework in place, and with government maintaining a relatively tight fiscal stance, inflation fell sharply from its peak of around 60 percent per annum in early 1994 and remained in single digits throughout the remainder of the decade (see Figure 1). By mid-2000s, however, inflation was once more starting to drift upwards and accelerated from 2007. Most of this latter increase is accounted for by the accommodation of sharply rising food and fuel prices which, in turn, reflected developments in global commodity market combined with
a severe drought at home. Given the weight of food and fuel in the overall CPI, these developments drove headline inflation higher. Recent work by the IMF and Kenyan National Bureau of Statistics suggests that some of this sharp rise in food and overall inflation from the mid-2000s may have been spurious, stemming from methodological errors in the calculation of price indices. A new inflation series was introduced in November 2009 at which point year-on-year headline inflation was revised downwards from 17.5% per annum to 6.5%. 12

Nonetheless, inflation – including core inflation that was less affected by external cost-push factors -- had started drifting upwards before 2007 and concerns were being expressed that, compared to the immediate post-1994 period, the monetary-targeting framework was becoming less effective, even after allowing for the effect of measurement bias in the inflation data.

At a technical level, concerns also focused on the efficacy of the money-targeting approach and, in particular the increasing difficulty in accurately predicting the velocity of circulation and the money multiplier. The consequences of these prediction errors can be seen if we use the reserve money growth identity (2) above to decompose, ex post, the inflation error. Recalling that a p superscript denotes a prediction and a star (*) a target, the deviation of inflation from its target can be defined as

\[(\pi - \pi^*) = (\bar{H} - \bar{H}^*) + (\hat{y} - \hat{y}^p) + (\hat{\nu} - \hat{\nu}^p) + (\hat{m} - \hat{m}^p).\] (4)

Overshooting the inflation target can thus be attributed to (some combination) of four factors: (i) excess growth in reserve money, reflecting, possibly, a loss of fiscal control or unsterilized exchange rate targeting; (ii) lower than predicted output growth; (iii) higher than predicted velocity (i.e. a lower than predicted demand for money given the path of real income); and (iv) a higher than predicted money multiplier. The converse also holds so that, for example, over-prediction of the velocity of circulation (in other words money demand pessimism) will lead to an over-tightening of monetary conditions and an under-shoot of the inflation target.

We can use equations (2) and (4) to evaluate performance of the reserve money programme in Kenya over the last decade. Figure 2 compares the actual growth in reserve money against a counterfactual “inflation-consistent” path. The latter is computed from equation (2) on the basis of a target inflation rate of 5% per annum, and assumes that year-on-year real output growth is projected without error. The projected growth rates for velocity and the multiplier are computed at each point in time by extrapolating the growth rate over the past three years.\(^\text{13}\)

Figure 2: Actual versus ‘inflation-consistent growth in reserve money’

A number of features emerge from Figure 2. The first is that the average ‘excess’ money growth, though positive, is relatively low, with the mean deviation is just less than 1 percentage point per quarter, against a mean growth in reserve money of approximately 7% per quarter. Second, however, the standard deviation around this mean is large (8% per quarter). Deviations (in growth rates) from the target are, however, short-lived, their half-life being around 4 months suggesting a relatively strong ‘error correction’ element to the

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\(^\text{13}\) The simple rolling trend extrapolation represents a rule of thumb frequently used in negotiations with IMF mission teams. At each quarter the projected growth in velocity is the extrapolation of a linear trend estimated using the last 12 quarters’ data. Likewise for the multiplier.
authorities’ policy reaction function. This is consistent with recent econometric work by Maturu (2007) and Rotich et al (2008) showing that deviations of actual reserve money from its inflation-consistent path have a significant feedback effect overall inflation, and that over this period the Central Bank of Kenya (CBK) responded aggressively to such deviations in accordance with the ‘Taylor Principle’. An important implication of these papers is that over the 2007-2009 period when the ‘inflation bias’ in the CPI was sharply increasing, the progressively tighter monetary stance shown in Figure 3 was, ex post, tighter than required, arguably pulling the economy towards its inflation target more rapidly and at higher cost in terms of other objectives than was desirable.

Building on Figure 2, Table 1 decomposes the inflation error in equation (4) in terms of the different components of the money-targeting programme.

<table>
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<tr>
<th>Table 1: Decomposition of excess inflation 2000q1 to 2008q4</th>
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<td>Inflation error: $(\pi - \pi^*)$</td>
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<tr>
<td>Represented by:</td>
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<tr>
<td>Excess money growth: $\left( H - H^* \right)$</td>
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<tr>
<td>(relative to ex ante inflation-consistent path – Fig 2)</td>
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<td>Plus:</td>
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<td>Predicted error in:</td>
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<tr>
<td>Velocity: $(\hat{v} - \hat{v}_p)$</td>
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<tr>
<td>Money multiplier $(\hat{m} - \hat{m}_p)$</td>
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<tr>
<td>Residual</td>
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<tr>
<td>o/w prediction error in real GDP growth</td>
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<tr>
<td>2000q1 – 2008q4  2000q1 – 2004q4  2005q1 – 2008q4</td>
</tr>
<tr>
<td>6.3  3.1  10.4</td>
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<tr>
<td>0.7  -0.8  2.6</td>
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<tr>
<td>0.3  0.2  0.5</td>
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<tr>
<td>0.4  0.4  0.7</td>
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<tr>
<td>-4.9  -3.3  -6.6</td>
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<tr>
<td>-4.1  -2.7   -5.4</td>
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</table>

Notes: Errors in percentage points of inflation. See text for calculation of predicted velocity and money multiplier values; ‘Excess money growth’ is defined relative to ex ante inflation-consistent path which assumes zero prediction errors in velocity, money multiplier and real GDP. The residual is therefore the net effect of the deviation between the ex ante and ex post inflation-consistent growth in reserve money, the principal component of which is the prediction error in the growth of real GDP, $(\hat{y} - \hat{y}_p)$
Prediction errors in both velocity and the multiplier account for between 0.7 and 1.2 percentage points of the inflation error, but this is relatively small compared to the ‘residual’ component which consists of the contribution of over-predicting the growth of real GDP plus the effect the prediction errors have for the inflation-consistent growth of reserve money. The single largest factor in play is the difficulty in predicting real output growth. As our later discussion emphasizes, forecasting output accurately (and determining the nature of output shocks) is, and will continue to be, a first-order challenge for any economy, such as Kenya, undergoing rapid structural transformation. As Table 1 suggests, the returns to improved forecasting of output are likely to be high: this should be a priority research activity of the central bank.

Though forecast errors in velocity and the money multiplier are somewhat smaller, their importance should not be under-stated. Since 2002 velocity has been steadily declining although with marked quarter-on-quarter variation. This trend fall in velocity – which increases the inflation consistent growth of broad money -- has been accompanied by a sharp trend 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. Under strict financial programming – meaning that the short-run path for reserve money is aggressively error-corrected to keep inflation on target -- 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 increasingly difficult. In Kenya, as elsewhere in Africa, there has been a systematic tendency towards under-prediction of money demand growth during periods of favourable structural reforms, which have tended both to increase the ‘monetary intensity’ of economic activity (thereby exogenously raise money demand) and to support a step-decline in
inflation expectations. Failure to recognize this means excessive monetary restraint and excessively high domestic interest rates. In addition, as Berg and Boreznstein (2000) and Buffie et al (2008) have argued, currency substitution and dollarization will tend to increase the instability of money demand, thereby exacerbating the risk of unpredictable shifts in velocity.

*Figure 3: Velocity of circulation and M3 money multiplier*

The money multiplier is equally difficult to predict with accuracy in times of rapid financial innovation (see, for example, Saxegaard, 2006). First, aside from increasing the instability of money demand, dollarization may have similar effects on the money multiplier if the intermediate target is defined solely in terms of domestic monetary liabilities. In Kenya, the monetary target, M3, includes foreign currency deposits which internalizes such portfolio shifts (although the stability of the multiplier is now influenced in part by the effect of exchange rate revaluation effects operating on foreign currency deposits).

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14 Adam et al (2010) show, for the case of Tanzania, how structural reforms in that economy since the mid-1990s contributed to a substantial increase in the demand for money.
Second, however, rapid financial innovation is transforming financial markets, both in the large-scale formal end and, perhaps most dramatically with the rapid expansion of M-pesa mobile-phone banking which is beginning to have important consequences for the nature of money demand in Kenya (see Chapter 13 and Jack et al, 2010). Figure 4 plots the currency-to-deposit ratio over the period from 2000 to 2008, where the vertical line marks the introduction of M-Pesa. This ratio – which is one of the key components in the money multiplier – shows a marked decline in the cash to deposit ratio as M-Pesa is rolled out. Such innovation may also be expected to feedback onto banks’ own behaviour, altering the own liquidity preference which, in turn will be reflected in movements in the bank reserve ratio.\footnote{The money multiplier can be written as follows: $m = \frac{M}{R} = \frac{C+D}{C+R} = \frac{1+c}{c+\nu}$, where \(C\) denotes currency in circulation, \(R\) bank reserves and \(D\) deposits, so that \(c\) is the cash-to-deposit ratio and \(r\) the reserves-to-deposit ratio.}

\textit{Figure 4: M-Pesa and the cash-ratio}
Finally, maintaining a focus on money growth rather than on inflation itself may lead to a bias in favour of excess tightness even when inflation is correctly predicted to fall, for example because money demand is rising. This can arise because of a fear that warranted rapid nominal money growth cannot be explained to the public without undermining confidence about inflation, or perhaps, and more correctly, it will not be understood properly, precisely because the public would like to focus on indicators that bear directly on their lives such as exchange rate movements, interest rates and food prices.

While problems of accurate measurement of inflation and output (and the output gap) are also present under inflation targeting, the direct focus on the ultimate target of inflation, rather than an intermediate target such as money, meant the difficulties presented by shifts in velocity and the multiplier are obviated. Inflation targeting bypasses movements in intermediate aggregates and hence accommodates structural shifts in and shocks to money demand, either through discretionary adjustment of quantitative policy instruments (reserve money), or, automatically once interest rates emerge as the main policy instrument. A virtuous circle may emerge since the since the greater the stabilizing effect of policy on inflation expectations, the more stable becomes the demand for money itself and the lower the expected volatility from this source.

3.2 Institution reforms: same framework, evolving institutional architecture

These challenges of conducting monetary policy have taken place against the background of important and far-reaching institutional and structural changes to the monetary framework, though which the Central Bank of Kenya has gained greater operational independence. Allied to continued fiscal control and the progressive deepening of domestic money and capital markets, this has endowed Kenya with an institutional structure conducive to building a coherent inflation-targeting monetary framework. Successive revisions to the Central Bank of Kenya Act, have served to define the objectives of monetary policy, help develop price-based
instruments of monetary policy, and support a consistent strategy for communication and engagement.\textsuperscript{16}

The 1996 revision to the Act gave the Central a clear mandate to “formulate and implement monetary policy directed at achieving and maintaining stability in the general level of prices” while fostering “the liquidity, solvency and proper functioning of a stable market-based financial system”. This mandate was made concrete in the form of an inflation target announced by the Minister of Finance in the annual Finance Bill. This target which has remained at 5 percent per annum since the first Monetary Policy Statement issued in 2007. This unambiguous mandate was, however, modified in 2007 with the introduction of a less precise requirement that, \textit{conditional on the Bank meeting its core requirements} the Bank should seek to “support the economic policy of the Government, including its objectives for growth and employment”.

But perhaps the landmark change was the introduction in the 2007 revisions of an executive Committee on monetary policy – the Monetary Policy Committee (MPC). The MPC formulates monetary policy and is accountable to the Board of CBK. In addition to its advisory and policy formulation functions, the MPC, which consists of both internal and external members, plays a central role in the communication of policy decisions and their rationale, thereby serving to coordinate market expectations and communicate the likely future path of the economy.

4. Challenges

In terms of structure and conduct, the Kenyan monetary regime is, at present, a hybrid. The authorities publish an explicit inflation target but concerns about the level and volatility of the exchange rate remain ever present and the debate on the extent to which monetary policy can

\begin{itemize}
  \item Since its promulgation in 1966 the CBK Act has been revised 16 times. 11 of these have occurred since 1996 and six since 2000. The 1996 revisions established the nature and term of the Governor’s appointment (by Presidential appointment and for a maximum of two terms of 4 years), prescribed that the external value of the shilling would be market determined; and articulated clear and specific objectives for monetary policy (see text).
\end{itemize}
and should be used to address concerns about external competitiveness is active (see Chapter 8). The language of monetary policy emphasizes the role of indirect instruments in influencing the price of credit, but practice is resolutely anchored in a conventional quantity-based approach where M3 remains the principal intermediate target and the volume of reserve money the operating instrument. Thus while, for the moment, the Kenyan authorities have stopped short of implementing a full-fledged formal inflation-targeting structure there are pressures to move decisively in this direction. These pressures have been both technical and political. At a technical level, as noted above, concerns have been mounting that while the current money-based program performed exceptionally well in establishing price stability in the decade from the mid-1990s, it has been performing less well as the economy develops and financial markets deepen and become more open. These new sources of instability alter the transmission mechanism and challenge the basis for a simple money-based program.

Meanwhile monetary policy continues to contend with both substantial supply-side shocks to agriculture, the terms of trade and aid, and periodic portfolio shocks, the most recent being the shift away from the Kenyan shilling at the time of the election-related violence in early 2008.

Not all of these challenges relate solely to the use of money-targeting, though. We have already alluded to the problems of forecasting output and the errors in the official measurement of inflation, which recently placed the programme under strain, would have led to a ‘deflation bias’ in any monetary framework where the ultimate policy objective is an inflation target.

On the political side, there is pressure towards increased economic integration under the auspices of the East African Community. Some of this is in the domain of trade policy but it is being accompanied by moves towards monetary union (echoing the AU’s Abuja Declaration on economic integration of 2005). In August 2007 the heads of state of the EAC (Kenya, Uganda, Tanzania, Rwanda and Burundi) committed themselves to full monetary union in 2012. While significant doubts surround the feasibility of meeting this target date – a view reinforced by the recently-endorsed ECB report -- the central banks of the EAC, including the

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17 The Treaty for the Establishment of the East African Community was signed on 30th November 1999 and entered into force on 7th July 2000 following its ratification by the original three partner States – Kenya, Uganda and Tanzania. The Republic of Rwanda and the Republic of Burundi joined the EAC on 18th June 2007 and became full Members of the Community with effect from 1st July 2007.
CBK, have committed themselves to move, with deliberate speed, towards revising the current framework to accommodate changing policy challenges and emerging wisdom in inflation targeting (including, as an important first step, harmonization of methods for measuring inflation).

Other than South Africa, the only African economy that has sought to implement full-fledged inflation targeting is Ghana, which embarked on this path in May 2007. Implementation has been difficult (Sowa and Abradu-Otoo 2009) and, as O’Connell (2010) notes: “…the Bank of Ghana had yet to achieve a target range that was already higher and wider than that of any other targeter. Its struggles with transparency are palpable; and it remains to be seen whether the distortions implied by committing to a target that is rarely met and difficult to forecast, are fundamentally damaging to economic stability – or are more than compensated by committing the fiscal authorities to self-restraint and forcing the pace of institutional maturation within the central bank. “

These same concerns must, of course, figure large if Kenya were to move in the same direction. In this final section, we consider some of these in more detail. We focus on four issues: (i) the efficacy of IT regimes in environments subject to supply-side shocks; (ii) reconciling inflation targeting with competing policy objectives, specifically those concerning the exchange rate and competitiveness; (iii) the challenge of a weak monetary transmission mechanism; and finally, (iv) whether an IT regime can form a buttress against future fiscal indiscipline. The importance investing in the research capacity of CBK and its MPC and the data generation capacity of the statistical authorities is an obvious fifth challenge. We do not treat this separately here, not least because our discussion of the other challenges effectively defines the relevant research agenda.

4.1 Inflation targeting when supply-side shocks predominate

All economies are exposed to both aggregate demand and aggregate supply shocks. For demand side shocks – for example, unanticipated public expenditure -- the impact on the output gap on the one hand and inflation on the other are positively correlated (excess
demand drives up both the output gap and inflation), while for supply-side shocks this correlation is negative.

As Figure 5 shows, as per capita incomes rise the correlation of output and inflation flips from negative to positive. This is consistent with the interpretation that in industrialized country environments shocks tend to come predominantly from the demand side while in developing and emerging market countries, supply-side shocks tend to play a much larger role. An obvious, indeed perennial, example of the latter would be the effect of unanticipated variations in rainfall on agricultural output. Kenya’s location in Figure 5 is consistent with the prevalence of this type of shock. It turns out that this simple distinction poses a major challenge for the conduct of monetary policy as it undermines one of the features that has made inflation targeting so attractive to industrialized economies. Moreover, pursuit of aggressive inflation targeting in the presence of supply-side shocks may, in fact, be counterproductive by leveraging-up this output volatility. And to make matters worse, the obvious solution to the problem – the one adopted in other settings -- turns out to be quite unattractive for low-income countries such as Kenya.

The essential problem is as follows: with demand shocks moving output and inflation in the same direction, a policy reaction, for example an interest rate rise, designed to bring inflation back on track will simultaneously serve to eliminate excess demand. This ‘divine coincidence’ – the fact that demand shocks dominate and that a policy reaction targeting inflation also targets output – goes a long way to explaining the attraction of IT in industrialized countries. With supply-side shocks -- for example an increase in the cost of imported oil which drives up production costs, thereby reducing output and simultaneously adds to inflationary pressures -- output and inflation will move in opposite directions. One instrument is now no-longer sufficient: acting to stabilize the inflationary consequences of a supply shock risks exacerbating the adverse output effects and vice versa. This brings to the fore the essential problem of monetary policy: with a single instrument, policymakers must confront the trade-off between competing objectives (in this case inflation and output stabilization).
**Figure 5: Demand-side vs supply-side shocks**

![Diagram showing correlation between real GDP and inflation over per capita income for 118 countries, 1990-2008.](image)

**Note:** The figure plots the correlation between output and inflation ‘shocks’ against per capita income for 118 countries for which continuous data exist over the period 1990 to 2008. Shocks are measured as the deviation of actual inflation (output) from a Hodrick-Prescott trend.

This is, of course, a generic ‘instruments and objectives’ problem, and will occur under any choice of anchor, but as Frankel *et al.* (2007) show, the appeal of inflation targeting over other policy rules -- most notably a money-targeting rule -- as a means of delivering lower inflation volatility and lower output volatility only holds true when demand shocks dominate. When supply shocks dominate, strict inflation-targeting continues to deliver lower inflation volatility but at the cost of higher output volatility.\(^{18}\) In these circumstances, a conventional money-based anchor will result in lower output volatility (although inflation volatility will be higher)

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\(^{18}\) The intuition is as follows. In a money-targeting environment, policy is anchored by a rule (i.e. a rate of growth for the money supply) that does not allow the instrument to respond to output and inflation developments (the ‘Friedman-principle’ noted above). In an inflation-targeting environment, however, the instrument does respond. A supply side shock which puts upward pressure on inflation will elicit a contractionary policy reaction and if this policy reaction feeds back on output (for example through the IS curve, the original output volatility is amplified. 

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and the unambiguous welfare-based argument in favour of inflation-targeting disappears. Frankel et al (2007) present these results in the context of very simple policy rules in which inflation targeting is strict (such that no weight is placed on output stabilization) and where money target is concerned exclusively with the intermediate target (money) and not with either inflation or output itself. Nonetheless, the fundamental point remains under more general policy rules such as the Taylor Rule specified in equation (3) above.

It is certainly not the case that the tension thrown up by supply-side shocks is restricted to developing countries only. It is just much more pervasive. Industrialized country central banks did, however, face exactly this trade-off in the first half of 2008 when the sharp increase in fuel and other input costs began to simultaneously squeeze output and stoke inflationary pressures. (Admittedly this episode was short-lived as the global financial crisis and the massive deleveraging that occurred subsequently turned this incipient supply-side shock into a negative demand shock of much greater proportion in which central banks were confronted by falling output and the threat of deflation: in this case there was no trade off and the conventional ‘Taylor Rule macro’ response by central banks was rapid and decisive and was only limited by the fact that the policy instrument, the interest rate, hit its zero lower bound).

But it is important to reflect on what these countries did in 2008 in order to understand the implications it has for the implementation of IT in countries like Kenya where supply side shocks are comparatively common. The conventional argument for handling supply shocks – which was employed in industrialized economies in 2008 – recognizes that such shocks typically emanate from developments in markets whose prices are outside the direct control of the domestic authorities. In most small open economies these are the markets for food and fuel, where prices of the former are driven to a large extent by weather conditions\textsuperscript{19}, and the latter by world market conditions. The appropriate response of (inflation-targeting) policymakers, therefore, is to distinguish between ‘core’ components of inflation – those where domestic policy has leverage – and these ‘non-core’ components of inflation and to bring to bear the apparatus of inflation targeting only on the core component of inflation,

\textsuperscript{19} Or, in recent years, by policy decision on, for example the US government subsidy programme for biofuels.
reacting to movements in non-core prices only to the extent that they have second-round feedback effects on core inflation. This leads to a strategy of accommodating the first-round effects of non-core price movements but bearing down on any second round effects. This is why most industrialized-country inflation-targeters let their headline inflation rate stray outside its target zone in the first half of 2008.

This approach makes sense in developed countries where non-core components account for a relatively small share of the overall CPI so that focusing monetary policy on the stabilization of core inflation goes a long way towards stabilizing overall inflation without drawing the authorities into destabilizing responses to supply-side shocks. In Kenya, as in other low-income countries, however, non-core items account for a large share of CPI. As noted in Figure 1, the combined food and fuel share in Kenya’s CPI basket has been in excess of 60%, and even following the revisions to the CPI weights in March 2010, the food share in the CPI is still around 40% and fuel a further 18%. In other words, targeting core inflation would mean that the authorities will end up targeting less than half the overall consumption basket. Even if an IT regime was extremely successful in stabilizing core inflation this may still co-exist with high volatility in headline inflation if the evolution of prices of non-core items is volatile. If, as seems reasonable, we believe that private agents set prices and wages not in terms of the evolution of expected core inflation – as IT theory suggests -- but on actual headline inflation, the efficacy of monetary policy is likely to be undermined as inflation expectations will be less securely anchored by any given policy action. Stated slightly differently, trying to control overall inflation in these environments would require the authorities to lean much more heavily on their policy levers, with the attendant risk of greater volatility in output and interest rates.

The argument for excluding these items from the target derives from the view that the role of monetary policy is to influence ‘sticky’ prices to bring the economy as close as possible to its notional real business cycle path (i.e. the path that would be followed if all prices were perfectly flexible). By this argument, prices that are in fact fully flexible, as is the case of imports where variations in world prices are allowed to pass through instantly to domestic prices, should be excluded from the target. Failure to exclude them would lead to placing excess weight on the policy levers. For example, seeking to lean against a positive oil price shock – which would be the case if policy was geared to targeting headline inflation - would lead to an inefficiently tight squeeze on the non-oil price component of the headline index, serving to ‘over-deflate’ the economy.

For example, food shares account for around 10% of CPI for the OECD (Euromonitor).
These are uncomfortable but unavoidable truths. As we have noted above, there are good arguments for believing that targeting inflation directly may be preferable to targeting money, at least from the perspective of anchoring inflation. But we may also need to recognize that this may come at the cost of higher output volatility and that this volatility may be greater the broader the measure of inflation we seek to stabilize. Having said this, it is reasonable to expect that over time the process of economic growth and structural transformation will ease the severity of this trade-off, both as the share of non-core good in total consumption declines and as diversification and innovation reduce the likely scale and frequency of supply-side shocks.

4.2 Reconciling exchange rate objectives

As stressed in the introduction, the incoherence brought about by the overburdening of monetary policy with multiple objectives meant that monetary regimes often delivered on none of them. But, even though a new understanding of the limits of monetary policy has emerged, the multiple objectives have not entirely disappeared, with concerns about the path and volatility of the exchange rate still playing a dominant role. This is certainly true for Kenya, as shown clearly in Chapter 8

One strand of the inflation-targeting literature (for example, Batini and Laxton 2007) argues for a clear and unambiguous prioritization of the inflation target with the authorities forgoing any attempt to manage the exchange rate. This argument does not imply that they should ignore the exchange rate -- not least because it plays a central role in forecasting inflation – but rather that it should be made clear that the authorities are not beholden to any specific value of the currency. Moreover, the argument goes, a non-interventionist stance creates the positive incentives for the private sector to develop the capacity to price and manage exchange rate risk.

Evidence – from Kenya and elsewhere – suggests otherwise. As Edwards (2007) and others have shown, intervention in support of the exchange rate is the norm rather than the exception amongst IT as well as non IT countries. Theory also lends support to this view. Buffie et al
(2008), for example, suggest that when fiscal policy reacts to variations in aid or commodity price flows, some degree of exchange rate intervention may be desirable, particularly where dollarization is widespread. These arguments are particularly powerful in environments where domestic prices are sticky or where other forms of market imperfection (e.g. credit rationing) mean that the effects of exchange rate volatility on real resource allocation are highly geared.

Responding at least indirectly to movements in the exchange rate is unavoidable in an inflation targeting setting in a small open economy setting like Kenya’s, even if stabilizing the exchange rate is not a separate policy objective (see O’Connell, 2008). With imports accounting for around 30% of total absorption, there is inevitably a strong pass-through from the exchange rate to domestic prices and output (see, for example, Cheng, 2006). Any framework that focuses on inflation and the output gap will therefore respond indirectly to exchange rate movements, even when the authorities profess adherence to a pure float.\textsuperscript{22}

But navigating these considerations requires coherence both at the level of policy and in terms of communication. The key issue for the success of inflation targeting is probably not that the authorities pursue a pure float but rather they establish a credible commitment that the inflation target will take precedence when there is a conflict. In reality, the recent history of low global inflation combined with the steady fall in velocity in many post-stabilization economies, allowed unsterilized exchange rate intervention aimed at limiting the appreciation of the domestic currency to be absorbed by rapid non-inflationary growth in money demand, so that the two objectives were rarely in conflict. With global inflation now rising more rapidly and the growth in real money demand easing, the risk of conflict is rising, not least because letting the exchange rate appreciate un-competitively may be the easiest way of hitting an inflation target in an import dependent economy.

\textsuperscript{22} Some authors have argued that if the exchange rate pass-through and capital mobility are sufficiently high, an inflation target may reduce to the virtual equivalent of a pegged exchange rate regime: shocks that otherwise depreciate the exchange rate and put upward pressure on inflation will draw forth an increase in the exchange rate which, in turn, will appreciate the exchange rate. Caballero and Krishnamurthy (2005) note that if market participants this reaction \textit{ex ante}, they will treat their domestic-currency claims as effectively insured against depreciation, and will take open positions that expose the economy to a greater likelihood of capital account crises.
The favourable experience of emerging-market inflation targeters over the last decade, including over the recent global crisis period, suggests that these concerns have been manageable. But as O’Connell (2008) notes, the literature offers very little guidance, however, on how multiple instruments – e.g., a policy interest rate and foreign exchange intervention – ought to be deployed when imperfect capital mobility allows the monetary authority some scope to reconcile domestic with external objectives. Little is known, for example, regarding the appropriate scale of intervention or the degree to which intervention should be sterilized (Edwards 2007). Analytical work on these issues is likely to begin emerging as the group of inflation targeters gets wider; meanwhile an appropriate presumption is probably that the degree of capital mobility is increasing rather than decreasing, and that while some scope for active exchange rate management likely exists, overemphasizing exchange rate objectives may carry significant risks.

4.3. Weak Transmission Channels

The effectiveness of monetary policy, and the credibility of any regime will depend on how reliably and how quickly observable policy actions influence inflation and other real variables, in other words, on the nature of the transmission mechanism. Critically, and especially in the context of an inflation-targeting regime, effectiveness also depends on how well the transmission mechanism is understood, since the ability of the monetary authorities to deploy their instruments to anchor expected inflation requires demonstrable results. Credibility will be undermined if observed policy actions are perceived to be ineffective or even have persistently perverse outcomes.

The textbook macroeconomic model, which underpins both IT frameworks and, with little modification, the more conventional monetary frameworks employed in Africa, fundamentally derives from research and experience of OECD.23 This model emphasises the

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23 Labeled the ‘New Keynesian Open-Economy Model’, this model consists of four basic elements: (i) an open economy IS curve characterizing aggregate demand in which the output gap responds to movements in real interest rates and real exchange rate; (ii) on the supply-side, a Phillips curve in which the conventional inflation-output relationship is augmented by a pass-through effect from the exchange rate; (iii) an interest parity condition; and (iv) a policy rule summarizing central bank interest rate-setting behaviour (Berg et al, 2006). As
interest rate channels of transmission, in which short-run interest rate decisions are transmitted directly to long-term interest rates which, in turn, influence the interest-sensitive components of aggregate demand and hence moderate expected and actual inflation. In the open economy setting, this effect is augmented by the exchange rate channel: higher interest rates appreciate the exchange rate which reduces net exports and thus the output gap. In addition, the exchange rate appreciation directly reduces the domestic cost of imports.

For less mature emerging markets and for pre-emerging markets where the financial sector is often much less developed, these traditional channels may be less powerful, while others may dominate. Moreover, transmission effects are also likely to be much less stable. We have already discussed how processes of structural transformation and innovation in financial markets generate shocks to velocity and the money multiplier, which can substantially alter the short-to-medium-run link between money growth or nominal depreciation and domestic inflation and output. In the rest of this section we consider some other areas where the transmission mechanism in Kenya is likely to differ from the textbook characterization. This is necessarily speculative since one of the major gaps in our knowledge about many contemporary African economies is a robust quantitative assessment of the relative strengths of alternative channels of monetary transmission.

In industrial countries, short-term market interest rates are the main instrument of monetary policy, operating directly through interest-sensitive components of absorption and indirectly through wealth effects, by altering collateral conditions and thereby expanding or contracting bank lending. An implicit assumption is that the banking system is relatively competitive and fully lent out so that changes in the short-run policy rate are rapidly transmitted through the length of the yield curve. In less developed economies, including Kenya, where monetary policy still tends to be exercised through operations on the central bank’s own balance sheet – domestic credit policy, bond operations, and foreign exchange sales – and where the banking sector has been dominated by oligopolistic commercial banks, interest rates tend to play a less important role. Although Kenya is home to one of the most developed banking systems on

Adam et al (2009) note, this model can be readily adapted to reflect an environment in which the policy instrument is the money supply rather than the interest rate.
the continent, levels of intermediation are still significantly lower than elsewhere in the world. Banks have, historically, tended to be highly liquid, suggesting little intermediation at the margin, with excess funds are often invested not in private enterprises but in government securities, foreign deposits, and non-remunerated excess reserves (Cihak and Podpiera 2005, Sacerdoti 2005, Saxegaard 2006) suggesting that the bank credit channel in the transmission of monetary policy has been weak. The absence of a strong interest rate or credit channel effects is a feature of the few empirical studies of the transmission mechanism in Africa. This feature emerges from studies of Kenya (for example the work by Cheng (2006)), although, importantly, the most recent work focusing on bank performance over the 2000s suggests that the bank lending channel is becoming significantly stronger (see Sichei and Njenga, 2010).

The exposure of domestic banks to capital gains and losses from exchange rate movements also strengthens the exchange rate channel. Although dollar-denominated deposits are widely available, commercial banks rarely hold substantial open positions, due to a combination of regulatory restrictions and caution; nor do domestic firms, given the reluctance of banks to lend domestically in foreign currency. Nonetheless, the widespread use of foreign currency and foreign currency deposits in private portfolios increases the sensitivity of domestic money demand to interest rates and inflation.

Finally, although conventional interest rate channels may not be strong, interest rate effects may operate more powerfully through domestic debt markets onto the fiscal accounts. Domestic asset markets in most African economies, including Kenya, are still relatively thin and oligopolistic while CBK still conducts much of its open market operations using government debt instruments. The level and volatility of interest rates thus places considerable stress on the consolidated fiscal accounts, so that monetary policy actions can exert powerful real effects through the fiscal burden of interest payments. These effects may be magnified when the domestic fiscal balance is also sensitive to movements in the exchange rate as is the case in economies where revenues are highly dependent on commodity prices and/or aid flows (see O’Connell et al, 2007). These fiscal channels of transmission tend not to feature in the textbook model, but understanding them is of critical importance for
implementing effective monetary policy in most emerging and pre-emerging market economies.

We started this section by noting that policy effectiveness requires a credible understanding of the monetary transmission mechanism. In reality, though our understanding is improving, we still lack a robust calibration of the relative strength of the key channels from policy instruments to outcomes and, arguably, less than is required implement a full-blown and credible IT regime. Addressing this gap in knowledge must be a priority for the central bank.

4.4 Guarding against the re-emergence of fiscal dominance.

A major achievement of the Kenyan authorities over the last decade has been the elimination of fiscal dominance, allowing a coherent monetary policy to emerge. The dragon of fiscal indiscipline is, of course, never completely slain, so an important consideration becomes the capacity of alternative monetary regimes to offer an effective bulwark against recurring fiscal indiscipline. Under conventional monetary targeting and particular that practiced in many Africa countries under the aegis of IMF-monitored programmes, this disciplining role centred on quantitative ceilings on the domestic credit to government component of reserve money growth and was policed by IMF programme performance criteria.

As the IMF’s role in Africa changes, with fewer countries engaged in prolonged lending arrangements (Kenya’s last Fund programme expired in 2007, for example)\textsuperscript{24} debate has turned to the question of how best to fill the external agency of restraint role played by the Fund. Here, a well-established inflation targeting regime may contribute in a positive manner. First, and most obviously, the explicit commitment to an agreed inflation target – especially one that the authorities are seen to converge towards -- combined with increasingly transparent public role for the MPC in explaining policy choices help reinforce the credibility and independence of the central bank. But this may be reinforced by another mechanism, first described by Bean (1998) in the context of the UK. Bean characterized the relationship

\textsuperscript{24} This is not counting the Rapid Access Exogenous Shocks Facility credit extended in 2009 at the onset of the global financial crisis.
between the central bank and ministry of finance as a so-called ‘Stackleberg game’ in which a credible monetary policy regime allowed the central bank to act as a ‘Stackleberg follower’ that set monetary policy so as to deliver the inflation target, given the fiscal policy stance being adopted by the Treasury (Ministry of Finance). Recognizing this, the fiscal authorities, as the ‘Stackleberg leader’ would not be tempted to over-expand the economy, since it would know that if it did the monetary authority would just raise interest rates and activity would not actually increase: more precisely, the central bank’s interest rate action would ensure that a fiscal expansion directly crowded out private activity.

As O’Connell (2010) notes, however, this strong disciplining perspective may, however, need to be tempered if the underlying political economy constraints generating excessive fiscal pressures have not been fully addressed. As countries such as Zambia and Uganda discovered as they sought to implement ‘cash budgets’ in the 1990s, tight commitments on inflation, and therefore on monetary finance in circumstance when underlying spending pressures are not concomitantly reined in can result in inefficient fiscal adjustments elsewhere or costly domestic or international borrowing. In other words, monetary policy cannot on its own ‘solve’ structural problems of fiscal control: this requires deeper political considerations, even though a credible and transparent monetary regime may play an important role in securing fiscal discipline on an ongoing basis. In such circumstances, O’Connell (2010) suggests, “...when fiscal problems are serious a more accommodative policy at the outset might share the adjustment burden more efficiently between seigniorage and distortionary adjustments in fiscal policy, such that greater flexibility on inflation outcomes early on would more than repay itself in the medium run in terms of smoother adjustment, lower inflation, and better performance of the real economy in due course.”

5. Conclusions

25 The Stackleberg game is a concept in economics and game theory used to characterize the strategic interaction between parties, typically firms competing in a market, in circumstances where each understands the other’s reaction function (i.e. how they will react to any action taken by the other player) and where one player, the ‘Stackleberg leader’, has some sort of market power, first-mover or other informational advantage. A key insight is that the Stackleberg leader’s best outcome will be that that internalizes the follower’s reaction function.
The achievement and maintenance of macroeconomic stability has been an important feature of Kenya’s economic performance since the mid-1990s. This has helped lay the foundations for structural change and innovation in financial markets and in the real economy, many of which are discussed elsewhere in this volume. In this chapter we have argued that whilst the current money-targeting regime was both well-suited to and effective in delivering macroeconomic stability, it is less obvious that it still constitutes the most effective regime as Kenya seeks to establish itself as an emerging market economy in the 21st century. We have argued that the inflation-targeting regimes that have been adopted widely across industrialized and middle-income emerging markets offer a potentially attractive alternative, but we have also identified some of the pit-falls and challenges the Kenyan authorities are likely to encounter as they move in this direction. For Kenya, the transition from one monetary framework to another will be neither abrupt nor taken in isolation. Many of the elements of full-fledged inflation targeting are already in place and the CBK is actively engaged in developing the capacity required to underpin new operational procedures with credible technical analysis. Many of these developments will be undertaken in concert with the other countries of the East African Community. The successful development of coherent monetary frameworks across the member states holds out the prospect of better macroeconomic management at the country level but of supporting broader economic convergence and more effective macroeconomic policy coordination at the regional level.
References


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