FOR AGENDA

EBS/14/24

March 5, 2014

To: Members of the Executive Board

From: The Secretary

Subject: **Conditionality in Evolving Monetary Policy Regimes**

Attached for consideration by the Executive Directors is a paper on conditionality in evolving monetary policy regimes, which is tentatively scheduled for discussion on **Wednesday, March 26, 2014**.

The staff proposes the publication of this paper after the Executive Board completes its discussion, together with a press release summarizing the Executive Board's discussion.

Questions may be referred Mr. Lane (ext. 39852), Ms. Pattillo (ext. 37319), and Mr. Opoku-Afari (ext. 37183) in SPR.

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INTERNATIONAL MONETARY FUND

March 5, 2014

CONDITIONALITY IN EVOLVING MONETARY POLICY REGIMES

EXECUTIVE SUMMARY

- With single-digit inflation and substantial financial deepening, developing countries are adopting more flexible and forward-looking monetary policy frameworks and ascribing a greater role to policy interest rates and inflation objectives. While some countries have adopted formal inflation targeting regimes, others have developed frameworks with greater target flexibility to accommodate changing money demand, use of policy rates to signal the monetary policy stance, and implicit inflation targets.
- Many Fund-supported programs assess the monetary policy stance through central bank balance sheet targets (net domestic assets or reserve money). An assessment of programs in developing countries with scope for independent monetary policy shows generally good adherence to net domestic asset ceilings but weak adherence to reserve money targets. No statistical correlation is observed between reserve money target deviations and inflation deviations in a low inflation context, raising the question of whether reserve money targets are reliable indicators of the monetary policy stance given financial innovation and shocks to money demand. Fund-supported programs for some members that have formal inflation targeting regimes have adopted a review-based approach to monetary policy conditionality through inflation consultation clauses.
- A review-based conditionality to assess monetary policy is proposed as an option to replace a performance criterion on net domestic assets or reserve money, for countries with evolving monetary policy frameworks that have a good track record of monetary policy implementation supported by central bank technical and institutional development, or are committed to a substantial strengthening of the policy framework. Fund-supported programs would clearly articulate monetary policy objectives and set money or inflation target bands for each review. A monetary policy consultation clause would provide the necessary safeguards for the use of Fund resources in the event of deviations from the target band. The traditional framework for monetary conditionality would remain an option in countries where it has proven to be effective in achieving program objectives.
- The review-based approach to monetary conditionality rests upon enhanced central bank capacity to analyze monetary conditions. The Fund's training and technical assistance provision in this area is already substantial, reflecting existing efforts to meet a strong demand from members.

Approved By
Siddharth Tiwari

Prepared by a staff team led by Chris Lane and Catherine Pattillo, and comprising Maxwell Opoku-Afari, Marco Arena, Filiz Unsal, and Noah Ndela Ntsama (all SPR), Hamid Davoodi (ICD), Rafael Portillo (RES), Bernard Laurens (MCM), and Stephen O'Connell (RES/SPR Visiting Scholar) with contributions from Svitlana Maslova and Sarwat Jahan (all SPR). Research assistance was provided by Barbara Dabrowska, Carla Intal, Arshia Karki, Lamin Njie, and Sibabrata Das. Production assistance was provided by Lucía Hernández and Merceditas San Pedro-Pribram (all SPR). This paper has benefited from proposals made by an interdepartmental working group on flexible monetary policy regimes led by Michael Atingi-Ego, comprising AFR, MCM, and RES. Overall guidance was provided by Hugh Bredenkamp and Seán Nolan.

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Glossary

AFRITAC	African Regional Technical Assistance Center
CBR	Central Bank Rate
CPI	Consumer Price Index
DFID	Department for International Development
DSGE	Dynamic Stochastic General Equilibrium
ECF	Extended Credit Facility
EFF	Extended Fund Facility
EM	Emerging Markets
ESF	Exogenous Shocks Facility
FDI	Foreign Direct Investment
FPAS	Forecasting and Policy Analysis System
GLS	Generalized Least Squares
GRA	General Resources Account
ICC	Inflation Consultation Clause
IT	Inflation Targeting
LICs	Low-Income Countries
M3	Broad Money including Foreign Currency Deposit
MEFP	Memorandum of Economic and Financial Policies
MERP	Monetary and Exchange Rate Policies
MPA	Monetary Policy Analysis
MPC	Monetary Policy Committee
MPCC	Monetary Policy Consultation Clause
NDA	Net Domestic Assets
NCG	Net Credit to the Government
NFA	Net Foreign Assets
NIR	Net International Reserves
NSO	National Statistical Office
OLS	Ordinary Least Squares
PC	Performance Criteria
PRGT	Poverty Reduction and Growth Trust
PSI	Policy Support Instrument
RM	Reserve Money
RMP	Reserve Money Program
RMSE	Root Mean Squared Error
RTAC	Regional Technical Assistance Center
SBA	Stand-By Arrangement
TA	Technical Assistance
SSA	Sub-Saharan Africa
VAT	Value-Added Tax

MOTIVATION

1. Monetary policy frameworks in a number of countries with IMF-supported programs are evolving toward more flexible operational targets and more forward-looking policies.[1] Many developing countries have moved away from operating monetary policy frameworks centered solely on periodic quantitative targets for money aggregates to greater reliance on policy rates to signal the monetary policy stance. Several other countries with Poverty Reduction and Growth Trust (PRGT)- or General Resources Account (GRA)-supported programs have adopted some form of an inflation targeting (IT) regime, where the inflation forecast is the intermediate target and a short-term policy interest rate typically serves as the operational target/policy instrument, although some of those countries have not committed to an explicit inflation target. Looking ahead, many other developing countries that seek support under Fund facilities intend to modernize the conduct of monetary policy by using a more flexible framework.

2. This shift reflects the evolution of global thinking and practice, and the increasing sophistication of domestic financial markets in developing countries. Targets on monetary aggregates have been the traditional nominal anchor in most Fund-supported programs, and they have played an important role in helping stabilize inflation in the late 1990s and early 2000s and in supporting external stability. The liberalization of domestic financial markets has nevertheless expanded the scope for active management of market interest rates, while lower levels of inflation, frequent and large exogenous shocks, and increasing instability in money demand, among other factors, have weakened the relationship between money and prices and increased the priority on more nuanced policy frameworks as opposed to just "holding the line." Further, several GRA-supported program countries that were forced off pegs after sudden reversals of capital inflows have introduced hybrid frameworks, with a significant role for inflation alongside exchange rate and money objectives. The observance of reserve money performance criteria or indicative targets in Fund-supported programs has weakened, with more than half of the targets not observed, while at the same time there is no association between monetary target misses and inflation overshoots in low-inflation countries. Conversely, when monetary targets were observed, real GDP and inflation often differed significantly from projections. In other cases, adherence to the monetary program has led to unwarranted volatility of interest rates, thereby undermining a country's objectives of strengthening the role of policy rates in communicating the stance of monetary policy. The fundamental question is not whether money matters, but whether money targets continue to remain reliable indicators of the monetary policy stance, given financial innovation and shocks to money demand.

3. The evolution of monetary policy frameworks has implications for monetary conditionality in Fund-supported programs. There are clear guidelines and established practices for monetary conditionality for money targeting and IT frameworks. However, guidance is limited

[1] See IMF (2012) for discussion of the changing landscape in sub-Saharan Africa (SSA) and views from SSA governors on the challenges of money targeting in recent years.

and practice has varied for countries with evolving monetary policy frameworks. For money targeting frameworks, conditionality consists of a floor on net international reserves (NIR) and typically a ceiling on net domestic assets (NDA) or reserve money (RM), and in some cases net credit to government (NCG).[2] For IT frameworks, normally a review-based approach is employed under which a floor on NIR is maintained (to ensure external sustainability), while performance criteria on net domestic assets or reserve money are replaced with an inflation consultation clause (ICC).[3]

4. However, neither of these existing conditionality frameworks is well-suited for countries with evolving monetary policy regimes (countries experiencing increasing financial deepening, where policies are becoming more forward looking, including the nascent use of short-term policy interest rates to adjust the monetary policy stance). In such circumstances, relying on monetary aggregates alone is not sufficient, as policies become increasingly forward looking. A more comprehensive approach that analyzes monetary policy along a number of dimensions, and is not limited to an assessment of monetary aggregates alone, could achieve the objectives of conditionality while responding to the changing needs of members.

5. This paper proposes a review-based monetary conditionality framework as an option for countries with evolving monetary policy regimes. Under this approach, the Fund-supported program would introduce a set of quarterly or semi-annual (depending on the frequency of program reviews) monetary or inflation bands that the member would be expected to observe during the arrangement. This would replace the current performance criteria on reserve money and/or net domestic assets of the central bank, even though they may still serve as a tripwire depending on country-specific risks. Under the review-based framework, a deviation from the target band would trigger a formal consultation with the Executive Board in the context of a program review. Access to the Fund's resources under the relevant arrangement would be interrupted until the required consultation with the Executive Board takes place and the relevant program review is completed. This consultation would be informed by staff's assessment of (i) the reasons for deviations from the monetary policy objectives, taking into account compensating factors, and (ii) in light of this assessment whether or not remedial actions are needed to bring policies back on track.

6. The proposed review-based approach would be appropriate for countries with scope for independent monetary policy.[4] Specifically, the review-based approach would normally be appropriate for members that have made significant progress in achieving central bank independence along with other supportive institutional features, including minimal fiscal dominance,

[2] Evolution of conditionality is discussed in IMF (2009a). See 1979 Guidelines on Conditionality and 2002 Revised Guidelines on Conditionality.

[3] As suggested in IMF (2000a) and IMF (2000b), monetary policy is subject to periodic reviews focusing on current and forecasted inflation, and reviews would have to be completed by the Board before disbursements could be made. Furthermore, reviews would not be completed unless the Board is satisfied that the members' policies are consistent with the program objectives. See also IMF (2006).

[4] The universe would include countries with monetary targeting regimes, other monetary policy regimes, and crawling pegs/crawl-like arrangements as categorized in the Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) classification (see Appendix I).

a solid quantitative understanding of the inflation process, and an increasing focus on achieving an inflation objective. In some cases, enhanced policy advice and technical assistance (TA) would be needed to meet these conditions or to further develop central bank capabilities for effective monetary policy analysis prior to the adaptation of the review-based approach. The decision to implement the review-based approach in a particular country would be made on a case-by-case basis, based on discussions between staff and the authorities. However, the review-based approach to monetary conditionality should not be interpreted as necessarily implying an eventual move to an inflation targeting regime. This review examines the changing landscape in countries with evolving regimes, assesses the performance of the current monetary conditionality framework in Fund-supported programs, and reviews the practical application of conditionality in several case studies of Fund-supported programs. Concluding sections discuss operational modalities of the review-based approach and the implications for the Fund's resources and technical assistance delivery.

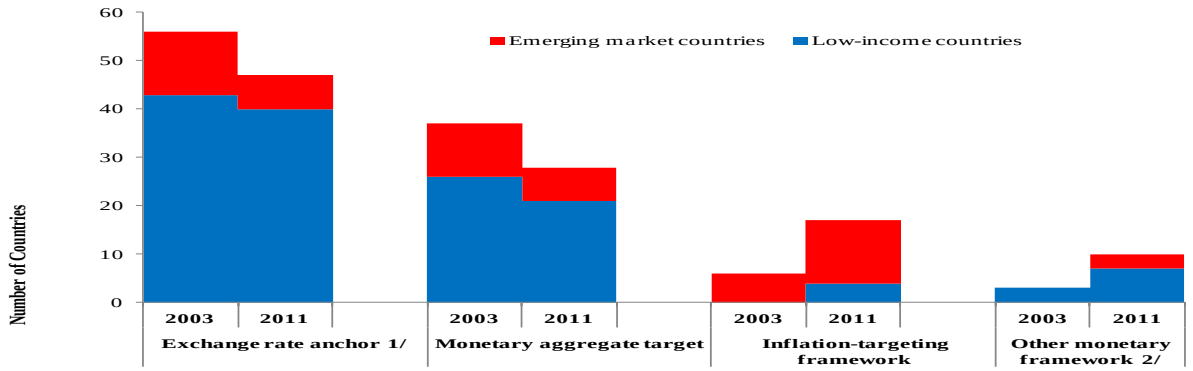
THE CHANGING LANDSCAPE OF MONETARY POLICY IN DEVELOPING ECONOMIES

7. Many developing countries are moving toward more flexible monetary policy frameworks and more forward-looking policies. From 2003 to 2011, the number of countries implementing money targeting has declined by about 25 percent—about 40 percent of the emerging market (EM) countries and 20 percent of low-income countries (LICs) have moved away from money targeting (Figure 1).[5] Most of these countries (for example, Albania, Armenia, Ghana, Georgia, Moldova, Serbia, and Uruguay) adopted a formal inflation targeting framework, while a few have started to implement mixed regimes such as monetary targeting and an exchange rate anchor.[6] Moreover, among money targeting countries, two evolving policy regimes—flexible money targeting and IT-lite/informal IT—have recently been implemented. Uganda (2009–2011) and, more recently, Rwanda (since 2012) were among the countries that experimented with some form of flexible money targeting; Uganda has recently adopted an IT-type framework.

[5] The data on monetary policy regimes are available from 2003.

[6] Many EM countries adopted a fully-fledged IT regime or many elements of it in the late 1990s as a transition arrangement, mostly in response to difficulties in keeping pegged currencies stable in the wake of the East Asian crisis. During 2003–2011, the move from fixed exchange rate arrangements to inflation targeting or mixed policy regimes continued among EM countries.

Figure 1. Monetary Policy Regimes in Developing Countries: 2003–2011



Source: IMF AREAER Database.

1/ The exchange rate anchor includes regimes where the exchange rate serves as the nominal anchor or intermediate target of monetary policy and includes pegs (with or without bands), crawling pegs, currency board arrangements, no separate legal tender regimes, and other managed arrangements.

2/ Other monetary framework includes regimes with multiple objectives, typically inflation or money target together with an exchange rate anchor.

8. The change of policy regimes reflects significant changes in the monetary landscape in many developing economies over the last decade. Countries have generally been more successful in anchoring inflation expectations and limiting the impact of domestic and external shocks on inflation—the mean inflation rate has declined from 18.6 percent in 1990–2002 to 9.3 percent in 2002–2012 (Table 1). Average inflation has fallen in both EM countries and LICs. Inflation volatility has also decreased—the average standard deviation of inflation declined more than half during the same period. The frequency of cases with high inflation volatility was also significantly lower in the more recent period (Figure 2).[7]

Table 1. Inflation: 1990–2002 vs. 2002–2012

(Average of end of period consumer price inflation, in percent)

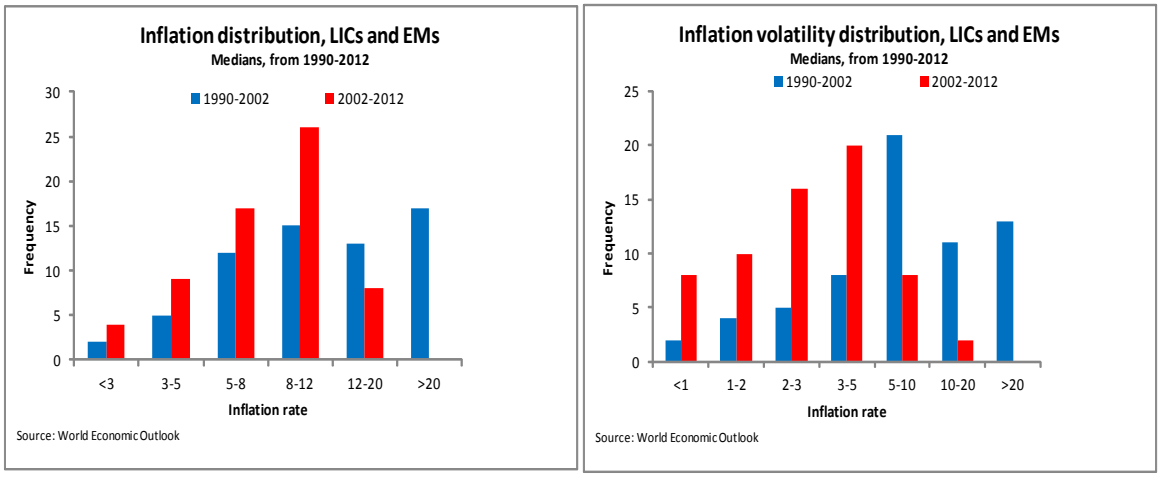
	1990–2002	2002–2012
Mean	18.6	9.3
Median	12.9	9.0
Standard deviation	17.9	7.2

Sources: World Economic Outlook and IMF staff calculations.

Note: Data are for 64 countries (35 EMs and 29 LICs) with some scope for an independent monetary policy. LICs are defined as countries eligible to use PRGT resources. EM countries are defined as non-PRGT eligible EM and developing countries in the WEO classification.

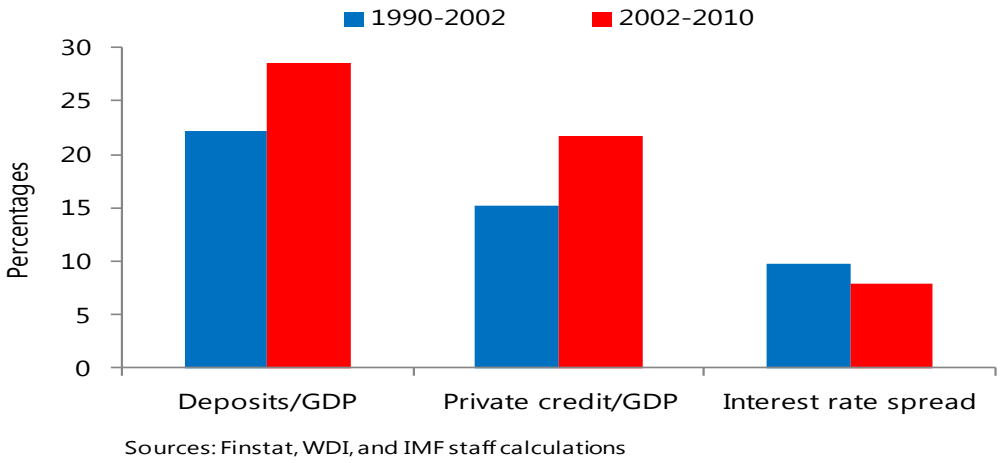
[7] The analysis in this section includes EM and developing countries (WEO definition), excluding countries that are members of a currency union, operate a currency board, or have a de facto fixed exchange rate, as presented in the 2012 AREAER Report.

Figure 2. Inflation and Inflation Volatility Distribution, 1990–2012



9. Fast developing financial systems have also contributed to changes in the policy landscape over the last decade. Median bank deposits and credit to the private sector (both expressed as a share of GDP) in developing countries have increased by close to one-third between 2002 and 2010 relative to 1990–2002 (Figure 3). In particular, LICs experienced a rapid financial deepening during this period—bank deposits and private credit almost doubled as a share of GDP. Interest rate spreads, which reflect amplified borrowing costs, declined by about 400 basis points in EM countries and 300 basis points in LICs. More developed financial markets in developing countries over the last decade have increased both the feasibility and the desirability of using short-term policy interest rates to steer the monetary policy stance while increasing the importance of managing expectations in monetary policymaking.

Figure 3. Financial Deepening (LICs and EMs)
(Medians, from 1990–2012)



10. Velocity and money multipliers have been subject to frequent and large fluctuations that have complicated the conduct of monetary policy. Over the last two decades, about half of the countries in the sample have experienced two or more structural breaks in money multipliers and velocity.[8] These breaks imply (i) an unstable relation between the intermediate target (broad money) and the policy tool (reserve money) and hence a limited control of the money supply under a money targeting framework, and (ii) unstable and/or unpredictable money demand, potentially altering the co-movement between monetary aggregates and inflation or the real economy.

11. The long-term relationship between broad money growth and inflation has weakened over time, especially in low-inflation countries. Cross-section regressions were used to characterize the relation between inflation movements and changes in monetary aggregates, while controlling for other factors including the impact of output growth (Appendix II). A long-run relation between inflation and money growth for developing countries was confirmed. However, the estimated coefficient of money growth decreases from 0.64 in 1990–2002 to 0.29 in 2002–2012 (Table 2). The regression coefficient for money growth in high-inflation countries is about 30 percent and 50 percent larger than for low-inflation countries, respectively, for the two periods.[9, 10] Moreover, in countries with higher financial development, the association between money growth and inflation is weaker in the more recent period.[11] These findings do not imply that increases in money supply are not inflationary. Rather, they indicate that in countries with low inflation, long-run money growth has been driven by factors other than monetary policy (particularly changes in money demand) thereby lowering the predictability of the relationship between the two variables.

[8] Over the period 1990–2012, velocity and money multipliers were subject to about four structural breaks on average. Structural breaks are determined using the Bai and Perron (1998, 2003) methodology with a trimming parameter of 10 percent. Each breakpoint is treated as unknown and estimated using least squares.

[9] In this paper, high (low)-inflation countries are defined as countries with inflation greater than or equal to (less than) 10 percent, which is median level of inflation throughout the period.

[10] Cross-country regressions of inflation on money averaged over long periods typically show a strong positive relationship notwithstanding different financial institutions and monetary and fiscal policies (Woodford, 2008) as would be expected by quantity theory of money (Dwyer and Hafer, 1988; Barro, 1990; McCandless and Weber, 1995; and Rolnick and Weber, 1998). However, de Grauwe and Polan (2005) using a sample of 160 countries, emphasize that the link between money growth and inflation is mostly a function of high-inflation cases. Thornton (2008), employing a sample of 36 African economies, also reports that there is a stronger relation between money and inflation for high-inflation countries, but the relation (weakly) exists for low-inflation cases as well.

[11] When the global crisis period (2009–2012) is excluded, the association between money and inflation is even lower in the more recent period, 2002–2008 (0.22).

Table 2. Money Growth and Inflation: Cross-Section Estimation (OLS) 1/

Dependent variable: Inflation (y/y)

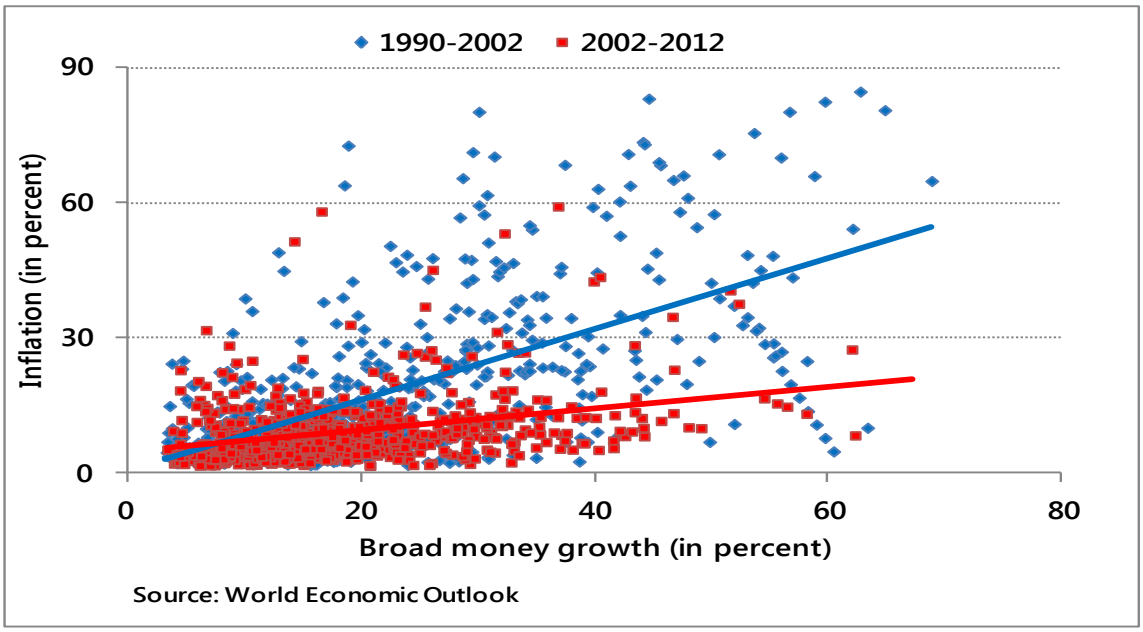
	1990-2002	2002-2012
Constant	2.521	5.27***
	(0.77)	(4.47)
Income growth (y/y)	-0.574	-0.46**
	(-1.25)	(-2.23)
Money growth (y/y)	0.638***	0.286***
	(3.12)	(4.15)
Money growth *High inf.	0.185**	0.141***
	(2.01)	(4.46)
Money growth *High fin. dev.	0.076	-0.075**
	(0.68)	(-2.21)
Number of countries	62	63
Adjusted R^2	0.635	0.635

Sources: World Economic Outlook and IMF staff calculations.

1/ Values of t-statistics reported in the parentheses are calculated using heteroscedasticity-consistent standard errors; * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

12. The shorter-term relationship between broad money growth and inflation has also progressively weakened. Across LICs and EM countries, the correlation between yearly broad money growth and inflation has been steadily falling from 0.63 in 1990–2002 to 0.33 in 2002–2012 (Figure 4). This is also supported by panel estimates—over shorter horizons (a year), the estimated coefficients of money growth and its lags are lower in the more recent period (Appendix II, Table II.2). The short-term relation between money and inflation was stronger for countries with high inflation and low financial development in the earlier period, but it declined across the board over the last decade.

Figure 4. The Relation Between Broad Money Growth and Inflation, 1990–2012



Source: World Economic Outlook

13. The observed weaker short-term link between money growth and inflation points to some limitations in relying solely on monetary aggregates to anchor and signal the policy stance. As broad money growth has become an increasingly weak indicator of the evolution of inflationary conditions, its usefulness as an intermediate objective has been significantly reduced for some countries while remaining relevant in others, particularly those with high-inflation rates or low levels of financial development. Without question, money still "matters" for inflation in that an exogenous increase in the money supply is likely to be expansionary. And money aggregates should continue to be used as one of the many indicators to assess the monetary policy stance. Analysis of monetary aggregates provides one piece of information for central banks in assessing inflationary conditions. However, in this environment, it is more difficult for nominal monetary targets to signal the stance of monetary policy; this could impair the link between monetary policy actions and their impact on economic activity and inflation.

14. The weakening link between monetary aggregates and inflation does not imply that monetary policy is ineffective. Some empirical evidence suggests that the monetary policy transmission mechanism—the set of channels through which policy decisions influence real activity and inflation in the short-to-medium term—is weak or unreliable in developing countries (Mishra and Montiel, 2012). Although there may be specific country circumstances where this is the case, regression-based assessments often struggle to disentangle the cause and effect of policy decisions. In addition, the transmission mechanism is often endogenous to the events in the economy and the policy framework. For example, as discussed later, Berg and others (2013) find evidence that

monetary policy has stronger effects in countries where policy is more clearly signaled to financial markets through a meaningful policy rate, such as Kenya and Uganda.[12]

PERFORMANCE OF PROGRAM MONETARY CONDITIONALITY

15. This section reviews the characteristics of monetary conditionality in Fund-supported programs between 2002 and 2012. Since 2002, there have been 105 Fund-supported programs (63 PRGT and 42 GRA-supported programs)[13] for countries with scope for independent monetary policy. This section documents the landscape of conditionality and analyzes program performance in achieving monetary and inflation objectives, taking into account country-specific characteristics. Country case studies shed light on how monetary policy conditionality in Fund-supported programs has responded to developments in monetary policy frameworks (see Appendix IV).

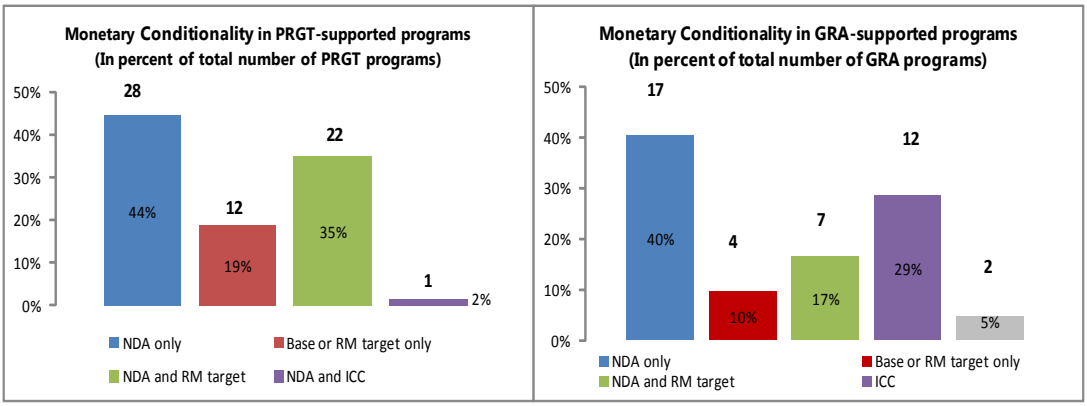
16. The majority of Fund-supported programs include the traditional net domestic asset target (alongside net international reserves), although close to half also included a target on reserve money. Since 2002, performance criteria (PC) on NDA have been set for about 70 percent of Fund-supported programs. Adherence to NDA ceilings has been generally good in Fund-supported programs. Reserve money is targeted in 44 percent of programs, as a PC in one-third of these cases and an indicative target in the remainder. All Fund-supported programs had Net Foreign Assets (NFA)/NIR targets, and most programs that cite reserve money as an indicative target already include NDA as a PC. Many programs included structural conditionality to track efforts to strengthen monetary operations and produce high-frequency indicators.

17. There is increasing adaptation to the growing diversity in monetary policy frameworks in GRA-supported programs as compared to PRGT-supported programs (Figure 5). More GRA-supported programs are shifting away from money targeting to the use of review-based conditionality through ICCs (about 30 percent of GRA-supported programs include ICCs). As a result, the proportion of programs targeting reserve money is lower in the case of GRA-supported programs (under 27 percent) than in PRGT-supported programs (about 55 percent). However, most GRA-supported programs continue to use the NIR/NDA framework in addition to other forward-looking indicators, including the use of short-term interest rates, to assess the monetary policy stance, while only two Fund-supported programs had no NDA or reserve money targets.

[12] The empirical evidence on the performance of using interest-based instruments is broadly supportive of their effectiveness in delivering low inflation and anchoring inflation expectations in both industrialized and emerging market economies. Hyvonen (2004) and Vega and Winkelried (2005) find that the move away from money targeting at least partly contributed to lower inflation and lower inflation volatility in the 1990s and 2000s. IMF (2005) argues that policy regimes that use an interest rate as a policy instrument with an explicit inflation objective appear to have been more effective than alternative monetary policy frameworks in anchoring price expectations.

[13] See Appendix III for a list of country programs. Programs in countries with currency board arrangements, exchange rate arrangement with no separate legal tender or conventional peg arrangements, GRA-supported programs in advanced economies, and Exogenous Shocks Facility (ESF) cases were excluded.

Figure 5. Conditionality Landscape in GRA and PRGT Programs, 2002–2012



1/ There are also cases (Turkey 2005 and Armenia 2009) where conditionality was defined in terms of reserve money and NDA despite the existence of an ICC at the time.

18. Adherence to reserve money targets in Fund-supported programs over the past decade has been weak, although money target misses have not been correlated with inflation deviations at low inflation levels. Estimates from 89 program reviews (based on 38 programs for 25 countries) that had an explicit target on reserve money (either as a PC or indicative target) show that the reserve money target was not observed in 51 percent of such reviews.[14] Considering PCs alone, about 20 percent of reserve money targets were not observed. In high-inflation countries, reserve money target misses were positively and significantly correlated with higher-than-programmed inflation, while proportionately large deviations in reserve or broad money growth are associated with generally small deviations in inflation.[15] In both PRGT- and GRA-supported low-inflation countries, however, reserve money target deviations and inflation deviations are not correlated (see Figure 6).[16] Similar results hold for the relationship between broad money and inflation target deviations.[17] This lack of correlation implies not just that money target misses are

[14] A target is not observed when the actual outturn of reserve money exceeds the target at the test date. This holds for both PCs and indicative targets.

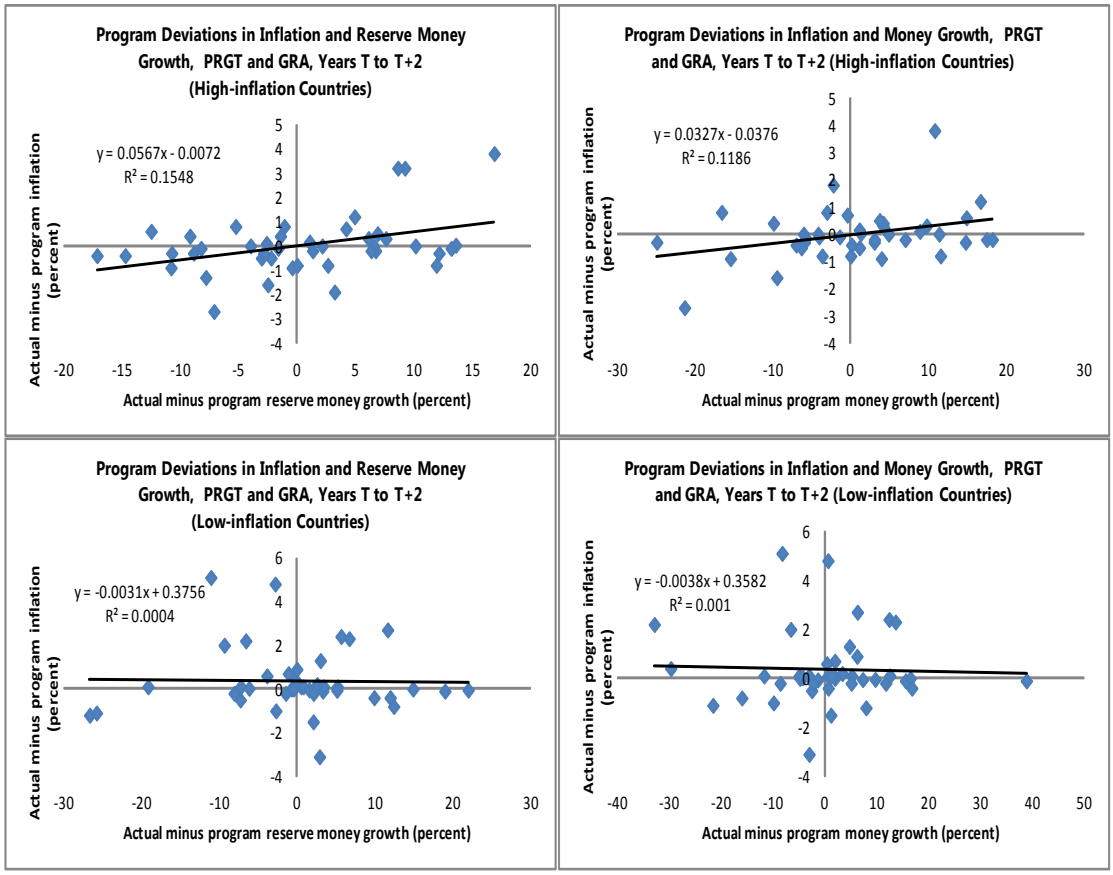
[15] In the case of reserve money target deviations, panel regressions using fixed-effects find a positive and statistically significant association in the case of high-inflation countries, which is robust to controlling for GDP deviations from projections, terms of trade shocks or food prices shocks, and time dummies. In addition, this result would also be the case for the sub-sample of PRGT-supported programs. In the case of broad money deviations, the association with inflation deviations would still be positive and significant after controlling for GDP deviations from projections, terms of trade shocks, and time dummies. However, the association is positive but not significant when including food price shocks. It becomes significant when excluding the time dummies.

[16] A similar result is found in IMF (2008) for a sample of 16 SSA countries. Also, IMF (2005) finds no statistically significant relation between projection deviations of money growth and inflation for a sample of 15 PRGT-supported programs in mature stabilizers during the 2002–2003 period.

[17] For programs only targeting NDA, there was no clear association between reserve money projection misses and inflation misses when inflation is low but some evidence of association with high inflation.

uninformative about inflation in low-inflation countries, but also that money target achievement can be relatively uninformative about inflation.[18]

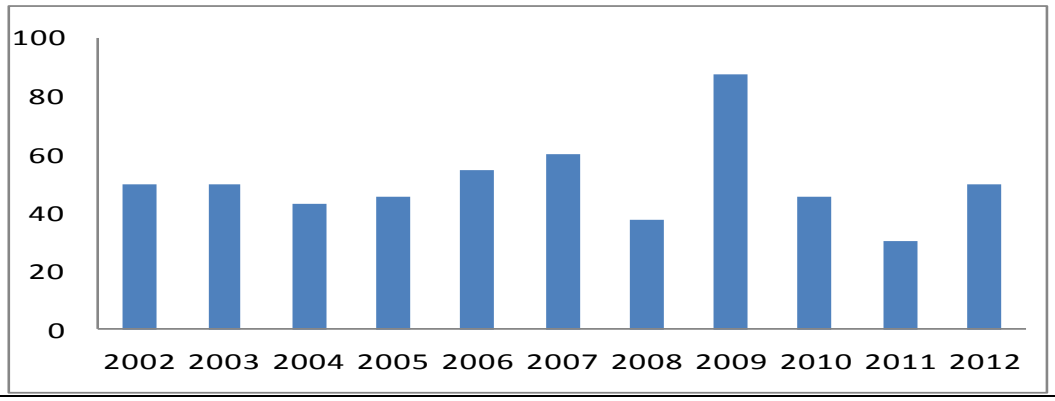
Figure 6. Money and Inflation Target/Projection Misses in Fund-Supported Programs, 2002–2011



19. Money target misses peaked during the onset of the global financial crisis, but they had been elevated throughout the past decade (Figure 7). The proportion of misses, relative to the number of program reviews, peaked in 2009 (at about 90 percent), during a period of extreme financial turbulence, price volatility, and rapidly shifting macroeconomic policies that were difficult to incorporate in short-term program projections. However, the proportion of target misses ranged between 30 and 60 percent in other years during the past decade.

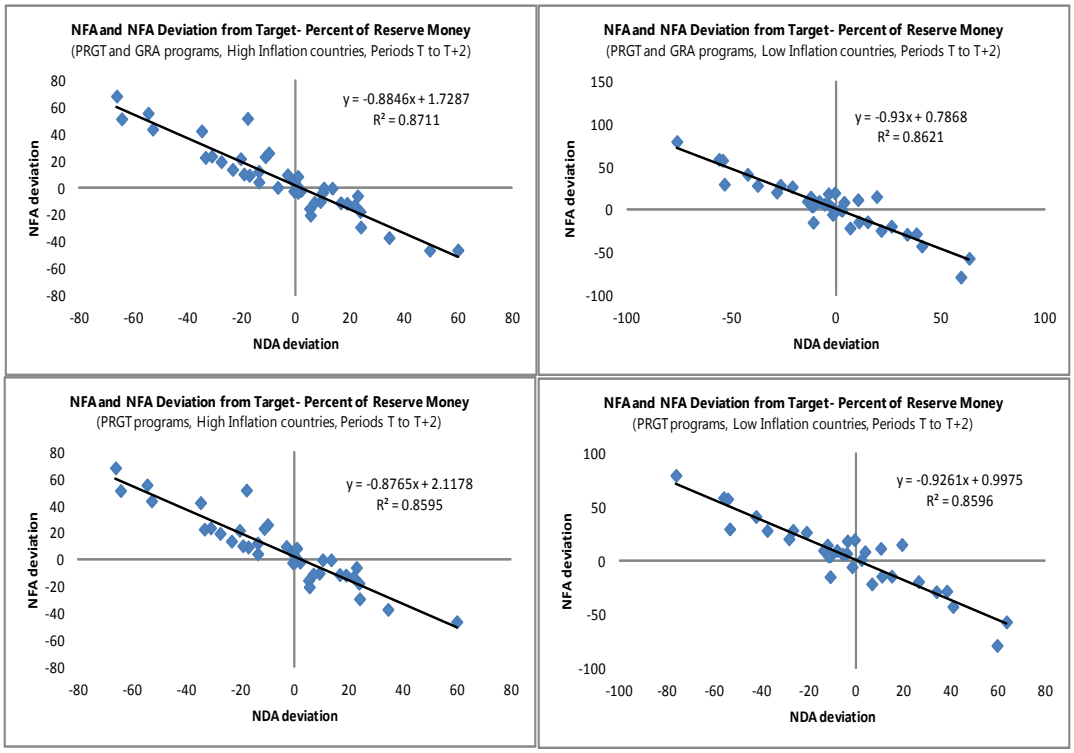
[18] This lack of correlation does not imply that money supply shocks are not inflationary but that such shocks are not a salient driver of money/inflation dynamics in the data.

Figure 7. Proportion of Annual Reserve Money Target Misses for PRGT- and GRA-Supported Programs, 2002–2012



20. Most of the non-observance of reserve money targets can be explained by higher-than-projected net foreign assets of the central bank (Figure 8). However, neither NDA misses nor NFA misses, individually, are statistically significantly related to inflation deviations from projections. Staff estimates show that higher-than-programmed deviations in NFA are not fully offset by reductions in NDA, resulting in reserve money target misses.[19]

Figure 8. NDA Deviations and NFA Deviations in Programs with Reserve Money Target



[19] This analysis is based on the 38 Fund-supported programs with explicit targets on reserve money.

21. Program projections of velocity and the money multiplier are on average close to outturns, although the averages mask a great deal of volatility that contributes to money target misses. On average, programs project a 3 percent annual decline of velocity reflecting, inter alia, a projected increased demand for money, while actual data also show a 3 percent velocity decline (Figure 9). However, there is considerable volatility in the projections, reflected in a root mean squared error (RMSE) of 9. Similarly, while on average, programs project an increase in the money multiplier of 1.5 percent compared to an outturn of 1.7 percent, volatility—exhibited by a RMSE of 9—is also considerable (Figure 10). While there is no trend bias in velocity or multiplier projections, the compounded impact of volatility in both factors would explain difficulties in accurately projecting reserve money demand in relation to broad money demand and nominal GDP.

Figure 9. Projected and Actual Changes in Velocity

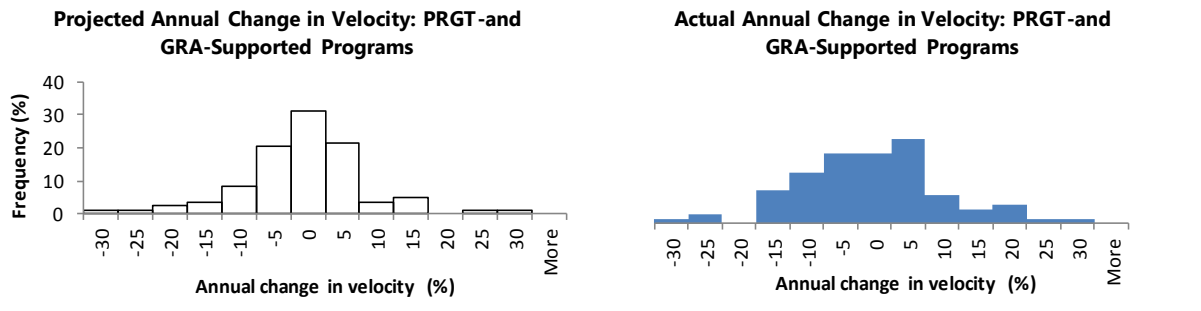
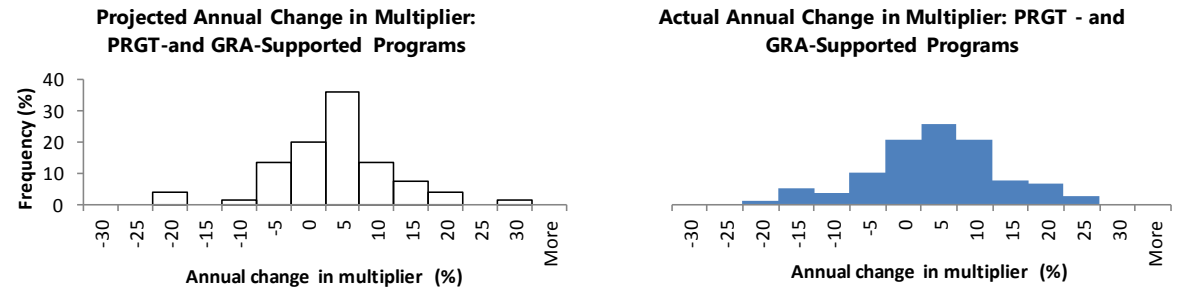


Figure 10. Projected and Actual Changes in Multiplier



22. These changed circumstances have led to some limited experimentation with a more flexible monetary conditionality, including setting narrow bands on reserve money (Tanzania and Rwanda). In practice, the focus in these programs remained on the upper side of the reserve money band (PCs were set on the upper band). The overall implementation experience of more flexible monetary conditionality has been mixed and has generally not provided sufficient flexibility in the view of some country authorities, while contributing to interest rate volatility that has obscured the signaling of the policy stance (see Box 1).

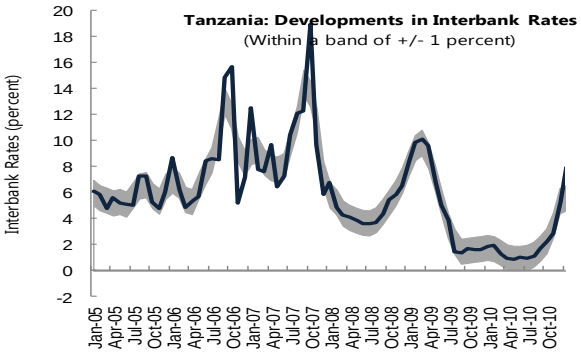
Box 1. Interest Rate Volatility and the Monetary Policy Transmission Mechanism in East Africa

Strict adherence to the announced monetary target in the face of money demand shocks can generate substantial, but often temporary, movements in interbank rates that do not signal policy intentions. Evidence from Kenya, Uganda, and Tanzania (from January 2005 to December 2012) shows that short-term volatility of the interbank interest rate (measured as the frequency of greater-than-1-percent deviations from a moving average) varies considerably according to their monetary policy regimes (text box).

Sum of Square Deviations from the 1 % Band

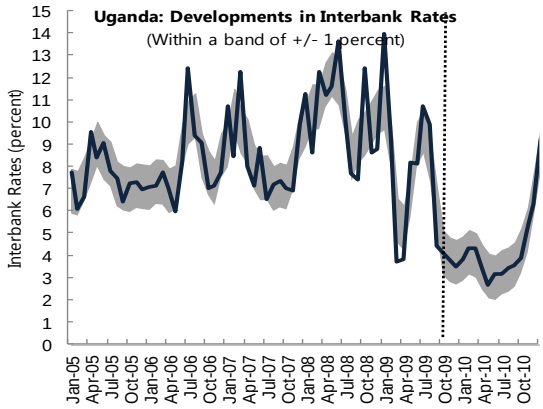
	2005-2009	2010-2012	2005-2012
Kenya	0.0	84.3	84.3
Uganda	89.5	25.4	114.9
Tanzania	111.5	174.7	286.2

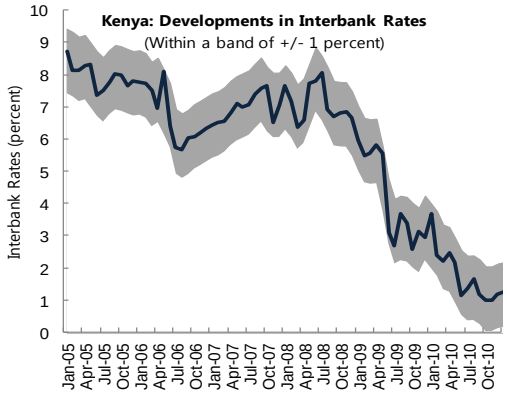
Source: Berg and others (2013)



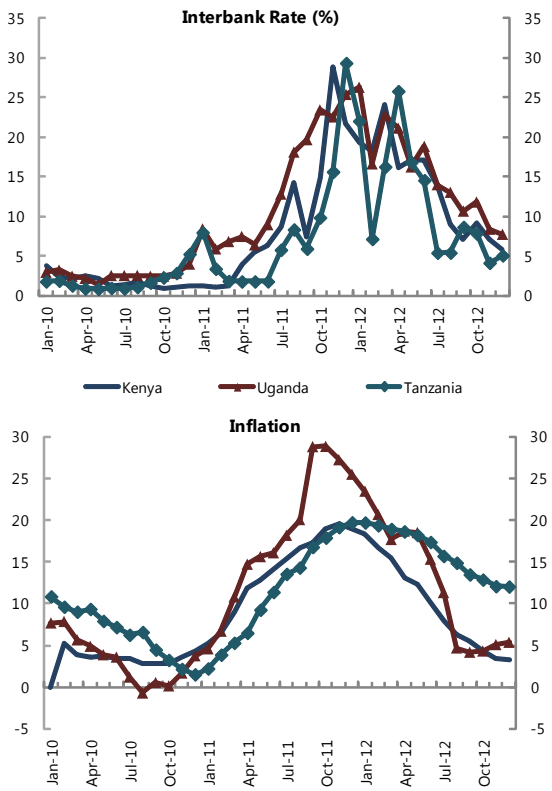
Tanzania adheres closely to its de jure money targeting regime, and this is reflected in higher volatility in interest rates during the period. Uganda also experienced very volatile interest rates prior to its move away from strict money targeting. Since October 2009, however, the Bank of Uganda has allowed 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 Bank of Uganda officially adopted an IT-lite regime and introduced the Central Bank Rate (CBR) to target the interbank rate, described in Appendix IV. After the switch, interest rates in Uganda have been relatively stable.

Kenya has been paying increasing attention to short–term interest rates, which is reflected in less volatile interest rates since the mid 2000s. Following policy implementation challenges in 2010–2011, the Central Bank of Kenya (CBK) introduced a new framework for monetary operations in October 2011, centered on its CBR, supported by greater use of open market operations (Andrle and others, 2013).





Box 1. Interest Rate Volatility and the Monetary Policy Transmission Mechanism in East Africa (Concluded)



The monetary policy regime has an impact on the strength of the transmission mechanism. Using a narrative approach following Romer and Romer (1989), Berg and others (2013) analyze a significant tightening of monetary policy that took place in 2011 in Kenya, Uganda, and Tanzania. The event study suggests that the transmission mechanism in these economies is alive and well: after a large policy-induced rise in the short-term interest rate, lending and other interest rates rose, the exchange rate tended to appreciate, output fell, and inflation declined. However, there are differences in the strength of the transmission among countries, largely explicable in terms of the nature of the policy adjustment and regime.

In particular, the transmission was the clearest in Kenya and Uganda, where the regimes used policy rates to signal changes in the monetary policy stance and explicitly prioritized the inflation objective. It was less clear in Tanzania, where the effects on some interest rates, activity, the exchange rate, and inflation were still broadly evident, but lending rates failed to respond, perhaps reflecting the fact that the money targeting regime led to highly volatile short-term interest rates and hence made it harder to discern the stance of policy.

	Kenya		Uganda		Tanzania	
Channel	Evidence	Lag (quarter)	Evidence	Lag (quarter)	Evidence	Lag (quar
Interest Rates Channel: Money Market Rates	Yes	1	Yes	1	Yes	1
Interest Rates Channel: Deposit Rates	Yes	1	Yes	1	Yes	1
Interest Rates Channel: Lending Rates	Yes	2	Yes	2	No	n.a.
Interest Rates Channel: Activity	Yes	3	Yes	3	Yes	1
Exchange Rate Channel: Arbitrage	Yes	1	Yes	1	Yes	1
Exchange Rate Channel: Pass-through	Yes	1	Yes	1	Yes	1
Credit Channel	Yes	1	Yes	1	Yes	1
Phillips Curve	Yes	2-3	Yes	2	Inconclusive	n.a.

Source: Berg and others (2013).

23. Several country case studies suggest that Fund conditionality has not consistently provided an appropriate policy anchor for some countries with evolving monetary policy regimes (Box 2 and Appendix IV). While program conditionality also evolved, there were challenges. In some cases, there was a lag: the Fund-supported programs targeted different intermediate targets than those that were the primary focus of the authorities, which led to a lack of clarity on monetary policy objectives, limited gains in building central bank credibility, and conflicting signals to market participants (Armenia, Uganda, and Moldova). In the case of the Dominican Republic, during the period preceding the adoption of IT, traditional monetary conditionality was deemed appropriate since the monetary policy framework was in fact not significantly changing. In Tanzania, minor changes such as period average rather than end-period reserve money targets were useful in making money targeting more effective, and there may be scope within this framework for the type of discussions envisaged in a Monetary Policy Consultation Clause (MPCC) on assessing implications of reserve money target misses.

ENHANCING THE MONETARY POLICY CONDITIONALITY TOOLKIT

24. The Fund's monetary policy conditionality is intended to assist members in resolving their balance of payments problems, while safeguarding the use of the Fund's resources. Program conditionality aims to ensure that: (i) recourse to Fund resources is temporary; (ii) Fund resources will be used to help members solve their balance of payments problems and achieve medium-term external viability while fostering sustainable economic growth; and (iii) members using Fund resources maintain the capacity to repay the Fund.

25. The "traditional" monetary policy conditionality has two standard PCs derived from the Polak 1950 model and the monetary approach to the balance of payments. The floor on NIR and a ceiling on NDA were originally designed to ensure external sustainability in a world of fixed but adjustable exchange rates. The PC on NIR (floor) aimed to ensure external sustainability, while the ceiling on NDA of the central bank reinforced this objective by ensuring that future sustainability was not derailed by excessive expansion in credit. While containing excessive credit expansion supported the viability of the exchange rate as an inflation anchor, the NDA ceiling was not primarily set for inflation control (Box 2). The combination of a floor and ceiling on the components of reserve money does not provide an automatic safeguard against excessive monetary expansion because sustained overperformance on the external position can result in excessive monetary expansion if not offset by reductions in NDA.

26. When disinflation became a key objective of most Fund-supported programs, an additional PC (or indicative target) on reserve money (base money) was often introduced. Reserve money targets then acquired greater prominence in Fund-supported programs during the 1990s, particularly among LICs seeking to lower inflation rates. However, there are conceptual and practical problems for evolving regimes that use money targeting. Key issues that arise are: (i) whether the framework gives enough weight to inflation (or disinflation) objectives; (ii) whether its

focus on the monetary base remains appropriate as countries move toward greater operational reliance on short-term interest rates; and (iii) whether it provides a coherent framework for monetary policy analysis in these countries.

Box 2. Monetary Targeting in Fund-Supported Programs

The monetary regime in Fund-supported programs typically includes a framework for quarterly projections of key monetary aggregates—referred to as a broad monetary program (BMP). Operationally, the central bank focuses weekly and daily projections of the main items of the central bank's balance sheet—or reserve money program (RMP). The BMP is based on the premise of a stable relationship between money and the price level (i.e., in the form of a money demand equation) over the medium term. It provides an assessment of the monetary stance (via broad money targets) in relation to the fiscal accounts and the balance of payments. The RMP is based on the premise of a stable relationship between broad money and base money (the money multiplier). It supplies the central bank with an operational tool to guide the calibration of its monetary operations when base money is used as the operating target for monetary policy.

27. In recognition of the adoption of inflation targeting, the reserve money/NDA PC was replaced with a review-based approach to monetary policy conditionality. This approach to monetary conditionality was implemented through the ICC to respond to tensions between the practicalities of IT implementation and the requirements of the NIR/NDA/RM conditionality framework (Box 3). Since 2000, a number of Fund-supported programs applied the review-based approach to monetary policy conditionality through the inclusion of ICCs in the relevant Fund arrangements, mostly in advanced and EM economies along with a handful of developing economies (mostly lower middle-income countries).[20]

28. The review-based approach to monetary policy conditionality involves setting bands around a target inflation variable, and a consultation with staff or the Board is triggered if actual inflation deviates outside the band.[21] The target variable was adjusted at the time of some program reviews, but generally the width of the band has not been adjusted. Consultations with the Board took place relatively infrequently (See Appendix V).

29. Neither the "traditional" conditionality nor the IT review-based conditionality (ICC) is necessarily well suited for evolving regimes.[22] Traditional monetary targets set as program PCs

[20] See IMF (2000a).

[21] The review-based approach for monetary policy conditionality approved by the Board in 2000 (IMF, 2000a; and IMF, 2000c) has been implemented in practice through the inclusion of consultation clauses in Fund arrangements. Under these clauses, if the member's inflation exceeds the inner band, a consultation with Fund staff is triggered; and if the member's inflation exceeds the outer band, access to resources under the arrangement is interrupted until the member consults with the Executive Board and the relevant program review is completed (see description of these clauses in specific country cases in IMF (2006), paragraph 60).

[22] An IMF paper (IMF, 2005) looked at the need for possible adjustments in the design of Fund-supported programs for LICs deemed mature stabilizers. The paper identified scope for some changes in the design of monetary programs by improving programming assumptions regarding velocity but did not explore options to better align conditionality to the changing characteristics and challenges of developing economies.

continue to serve many countries well and can be flexibly applied, including through the use of adjustors that anticipate exogenous shocks, the application of waivers, and the subsequent modifications of targets.[23] However, the benefits of these nominal monetary anchors can be undermined if they are frequently missed when policy objectives are being achieved or when they are subject to complex mechanical adjustments. Evolving regimes have unique challenges: they need to use considerable judgment regarding money targets; monetary policy is becoming increasingly forward looking; and yet there is no clear commitment to a numerical inflation target within a pre-set time horizon. There are clear benefits from modifying monetary policy conditionality for evolving regimes. A modification to the conditionality framework would in effect be catching up with actual practice while at the same time providing a framework for coherent monetary policy analysis to prevent a situation where "anything goes." However, countries that have adopted an effective inflation targeting framework would be typically expected to use the review-based approach through the inclusion of ICCs in Fund arrangements.

Box 3. Inflation Consultation Clause and Fund Conditionality

The Fund's 2000 policy on monetary conditionality under inflation targeting switched from the NIR/NDA/RM framework to a review-based conditionality for IT countries. This review-based conditionality was implemented in practice through the introduction of ICCs in the arrangement to replace the PCs on NDA and RM. The review-based conditionality had the following key components:

- An introduction of a periodic (usually quarterly) review with emphasis on assessment of current inflation against forecast and implications for inflation outlook;
- Where there are deviations from the targeted inflation path, following the assessment above, Fund staff and authorities would reach an understanding *ex ante* on a timely remedial monetary policy response;
- The use of the floor on NIR to maintain external sustainability and safeguard the use of Fund resources; and
- A mechanism to deal with country-specific risks. This mechanism could be allowance of enough room in setting of the NIR floor for unprogrammed intervention or the use of NDA ceilings where necessary. Where NDA ceilings are maintained, it is required to make clear to the public the relationship between NDA and inflation targets.

Since 2000, a number of Fund-supported programs applied the review-based approach to monetary policy conditionality through the inclusion of ICCs in Fund arrangements, mostly in advanced and EM economies with a handful of developing economies (mostly lower middle-income countries).

Although assessment of monetary policy during reviews need not be confined to a narrow set of variables, it was necessary to define a set of indicators on which such an assessment would be primarily based, hence the introduction of the inflation bands and the ICCs triggered by the member's deviation from the outer band. Under the ICC, an inflation target (usually the target of the authorities), as well as a tolerance band, is set as a basis to guide monetary policy assessment and reviews. Typically, programs would specify an inflation path (mostly quarterly) consistent with authorities' inflation targets, and current and projected inflation would be assessed against these target paths, and an understanding on specific remedial action

[23] Including, but not limited to, countries where actual or potential fiscal dominance remains and where the central bank strongly influences bank operations.

Box 3. Inflation Consultation Clause and Fund Conditionality (Concluded)

would be expected whenever the outlook suggested that future inflation objectives were likely to be missed by a pre-specified margin. Consultation bands introduced in Fund-supported programs since 2000 have generally taken the following form:

- Annual central inflation target + a quarterly path with a two-tier consultation band around central target.
- Outer band: ±X percent around central target. Consultation with the IMF Executive Board if actual 12-month chosen inflation index falls outside outer band.
- Inner band: ±Y percent around central target; (Y<X). Informal consultation with IMF staff if actual 12-month chosen inflation index falls outside inner band.
- The authorities would have to present remedial measures for consultation with the Executive Board for approval when outer band consultation is triggered.

A total of 13 Fund-supported programs with six members have used the review-based approach to monetary policy through the inclusion of ICCs in Fund arrangements since 2000. Overall, some flexibility has been applied in the choice of the target variable and width of bands, while central paths have been frequently adjusted in some programs particularly where there was a disinflation objective. More recently, some countries have been using single bands under the ICC framework. Out of a total of 70 reviews under these programs, about 27 percent have triggered a monetary policy consultation, of which 10 percent were consultations with Fund staff (informal consultation) and 17 percent were consultations with the Executive Board. The latter have taken place through consultation letters from country authorities explaining the causes of a deviation from the inflation target range and remedial measures, if any, that were taken or are to be taken (see Appendix V, Table V.1).

30. For these evolving regimes, the paper proposes a review-based MPCC framework with two objectives :

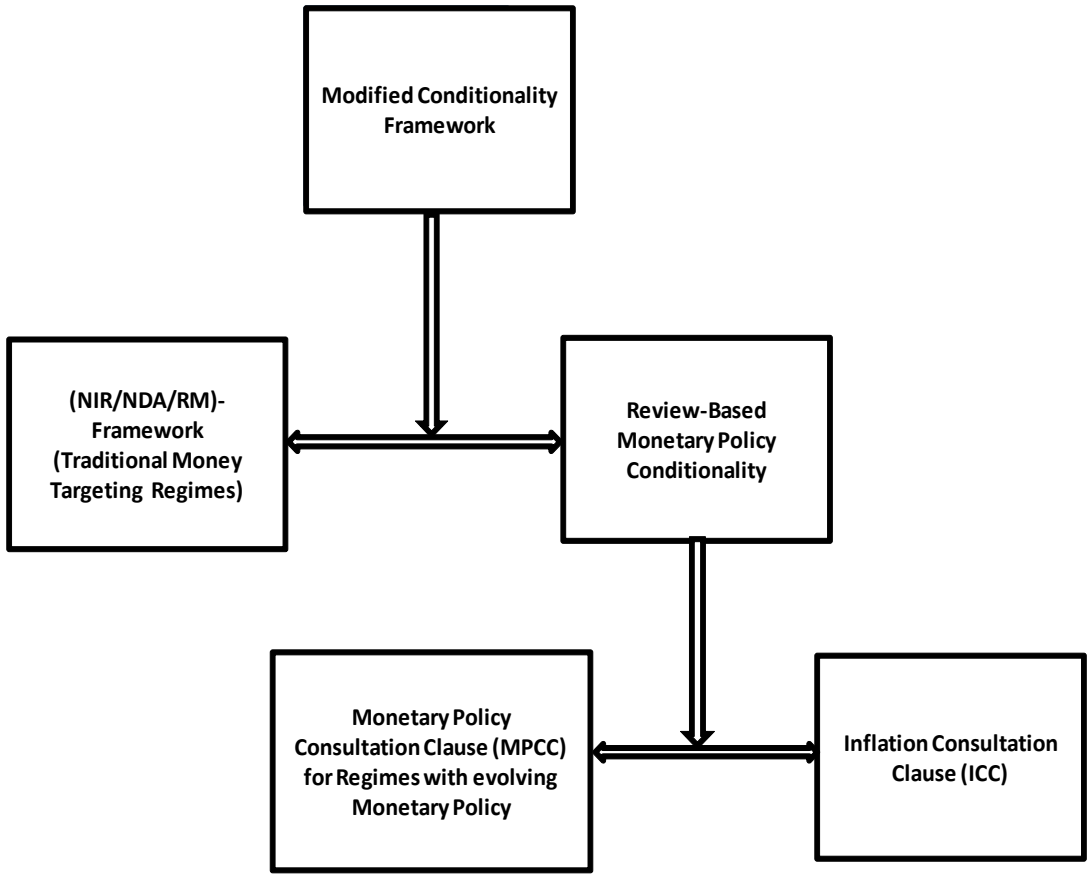
- *To provide flexibility and incentives for the development of a coherent framework for monetary analysis and monitoring under Fund-supported programs*. Under the MPCC, monetary conditionality would include a quantified macroeconomic framework with a set of quarterly or semiannual monetary or inflation targets set within a tolerance band. Deviations from the band would trigger a consultation with the Executive Board which would focus on: (i) a broad-based assessment of the stance of monetary policy and whether the Fund-supported program is still on track; and (ii) the reasons for program deviations, taking into account compensating factors and proposed remedial actions if deemed necessary.

- *To maintain external sustainability while safeguarding the use of Fund resources*. This would be served by maintaining the use of the NIR floor as a PC to ensure external sustainability. The performance criterion on NIR would also reinforce the country's commitment to some exchange rate flexibility, ensuring that the Fund's resources provide support for the adjustment needed to lead a sustainable external position. If, however, a significant margin for intervention were appropriate, an accompanied tightening of monetary conditions could be needed to limit inflation pressures. Additional tripwires (as indicative targets) may be needed to address country-specific risks, e.g., external stability or fiscal dominance concerns. The need and choice

of tripwires would be determined on the basis of understandings reached with country authorities, and would not rule out the continued use of NDA or monetary aggregates as tripwires, if warranted for these purposes.

31. The MPCC would be an option under the review-based conditionality framework (Figure 11).[24] The decision to implement the MPCC would be the outcome of discussions between staff and the authorities, while remaining the responsibility of Fund staff. While it would normally be adopted at the start of a program, authorities could also request to modify the type of monetary

Figure 11. Proposed Outline of the Modified Monetary Conditionality Framework



conditionality and adopt an MPCC during the program if circumstances change. Consistent with the guidelines on conditionality, the authorities are responsible for the selection, design, and

[24]The choice of a review-based approach is consistent with the way monetary policy is formulated in evolving regimes. Unlike conditionality based solely on performance criteria, a review-based approach with an MPCC entails a comprehensive assessment of monetary policy and the inflation outlook. Such an assessment is based on a wide range of indicators, some of which may be country-specific.

implementation of economic policies while the Fund is fully responsible for the establishment and monitoring of all conditionality including the MPCC. The introduction of the MPCC does not affect the design or operation of the ICC.

32. The MPCC would be based on a specified central path for the target variable (i.e., monetary aggregate or inflation). The central path should be consistent with, or on a convergent disinflation path to, any formal or informal public inflation objective. However, the central path would not necessarily be tied to a formal inflation target and hence, unlike the review-based monetary conditionality that works through ICCs, the authorities would not have to publicly announce and commit to an inflation target. The choice of variable for the central path would reflect monetary policy practice in the program country. Countries in which policy discussions are de facto centered on the inflation outcome and prospects could use inflation as the trigger variable, whereas those countries in which policy discussions continue to focus on monetary aggregates could choose monetary aggregates as the trigger variable. In program discussions, staff and the authorities would reach understandings on the framework that underpins the authorities' approach to monetary policy implementation: the key monetary policy objectives; operating and intermediate targets; and the available monetary policy instruments. These understandings would shape the design of the MPCC—making it country specific. The design of the central path (inflation or monetary aggregates) would have to be consistent with an inflation objective over a relatively short-time horizon, e.g., 12 months.[25] For regimes that choose inflation as the central path, either a headline or a core inflation measure could be used, depending on which one would best communicate the monetary policy stance to the public. For economies aiming to reduce inflation, the path could be designed to decline by a certain proportion over time. This path could either be a disinflation path or a monetary aggregate path set to achieve a specific inflation objective over a given time horizon.

33. The target variable subject to a monetary policy consultation would normally have a single tolerance band. This parsimonious approach would provide a clear signal of the monetary program objectives. However, in regimes that select inflation as the target variable, as in the ICC framework, in addition to an outer band, a narrower inner band could be used as an early warning to check that monetary policy is not veering off track. A deviation from the inner band triggers a staff consultation, but there would be no interruption of purchases if the consultation is not held. An inner band in the case of regimes that select money as the target variable may limit the additional flexibility the MPCC is meant to provide, as it would place excessive attention on monetary aggregates instead of the desired broader assessment of the policy stance.

34. The width of the tolerance band would be set sufficiently wide to provide adequate flexibility on a case-by-case basis, balanced against the need to steer monetary policy toward achieving its objective. Several factors would be relevant in setting the width of the band including the recent volatility of the target variable, the level and path of the target variable, and the choice

[25] The inflation objective would be similar to the inflation objective used in financial programming for Fund-supported programs. Beyond that, the authorities would not have to publicly commit to an inflation target if the country has not adopted an explicit inflation targeting regime.

and effectiveness of monetary instruments. The considerations in deciding the width of the band would also differ somewhat for a country choosing a band for inflation versus a band for a monetary aggregate. In general, a narrowly defined band would have a clear benefit of more strongly anchoring expectations than a broad band, but has to be weighed against the potential reputation costs for frequent deviations. This benefit would be particularly important for countries using an inflation band. For monetary target bands, when there are significant structural changes in the demand for money, narrow bands for monetary targets could be associated with higher interest rate volatility, with undesirable implications when trying to strengthen the role of policy rates to signal the policy stance. Ultimately, the band width would have to be determined based on country-specific circumstances and reviewed regularly to ensure it provides an adequate anchor and flexibility for the implementation of monetary policy.

35. Program reviews would include enhanced monetary policy assessment in the context of a clearly defined monetary policy objective. Reviews would involve assessing ex post outcomes for recent inflation or money as well as the near-term outlook, using a given set of indicators. Staff would also assess the authorities' capacity to implement the monetary program going forward, including maintaining the MPCC target variable within the band.[26] The set of indicators used in the review would include, but not be limited to, developments in monetary aggregates, interest rates, recent inflation outcomes (both headline and core), leading and coincident indicators of inflation and economic activity, survey-based indicators (business and consumer confidence surveys), and other available forward-looking variables.[27] The analysis would, among other things, discuss the drivers of inflation, the inflation outlook, and implications for the inflation objective. It would also be important to consider interactions between fiscal and monetary policy as the absence or limited scope of direct monetary financing does not imply that fiscal pressures have disappeared. Coordination of fiscal and monetary policy is also particularly important for countries with large aid or natural resource inflows.

36. Fund staff could draw on the ongoing work by RES, ICD, and MCM to develop a system that would help organize the underlying economic information in a structured way to support monetary policy implementation in developing economies (Appendix VI and VII). This analysis and the related training and TA could help with both the setting of the target and the interpretation of target misses, and whether a target miss reflects an excessively accommodative policy or other factors, e.g., money demand shocks. The analysis of target misses would be automatically complemented by a broader analysis of the state of the economy. Model use, however, would be optional, as other methods (including the use of leading and coincident

[26] Monetary policy discussions would also consider the implications of monetary policy for financial stability where relevant.

[27] STA, in conjunction with the Africa Regional Technical Assistance Center (AFRITAC) East, has started a pilot program to provide TA to central banks (Bank of Uganda and National Bank of Rwanda) on compiling leading indicators, with a view to rolling out these pilots to other SSA countries. See Appendix VIII for a detailed discussion of the role of high-frequency indicators in monetary policy decision making and a roadmap to help central banks begin compiling these indicators.

indicators) could be used for forward-looking policy analysis. In addition, a focus on improving short-term monetary operations and liquidity management is critical for developing countries working to modernize their monetary policy frameworks.

37. A formal consultation with the Executive Board would be triggered should the observed outcome of the target variable deviate from the band. In these cases, access to Fund resources would be interrupted until the consultation with the Executive Board takes place and the relevant program review is completed. The program review would not be completed unless the Executive Board is satisfied that the member's monetary policies are consistent with program objectives. In regimes that select inflation as the target variable, a deviation from the outer band would trigger consultation with the Executive Board, and if a narrower inner band is included, deviation from this band would trigger a consultation with staff.

38. The formal consultation with the Executive Board would be informed by staff's assessment of the monetary policy stance. Staff would assess whether deviations from bands are explained by compensating factors (including exogenous shocks) and make judgments as to the appropriate actions and policy commitments needed to correct program slippages. Staff reports would include the authorities' views in cases where there is divergence of views between staff and authorities on the assessment of monetary policy. The authorities would also be expected to present their assessment of the monetary policy stance as part of the Memorandum of Economic and Financial Policies (MEFP) or in a letter to the Managing Director, explaining reasons for the deviation from the target bands and remedial actions introduced where necessary. In the event of weak policy commitments to correct slippages, and in the context of an overall assessment of a member's economic and financial policies, staff and management could decide not to recommend completion of the relevant program review. Implementation of remedial actions could result in delay in completion of reviews. The review process will follow the normal review cycle of the Fund-supported program. However, staff will continue to maintain a dialogue with the authorities between program reviews (as is the standard practice) to monitor monetary policy developments.

39. The MPCC would provide flexibility attuned to the changing monetary policy frameworks in evolving regimes. It would provide the needed structure for organizing economic information to support the conduct of monetary policy, as well as the necessary safeguards for use of Fund resources and the country's capacity to repay the Fund by maintaining the NIR floor as a PC as well as, where necessary, a tripwire on NDA or other indicators.[28] It would provide a predictable and credible nominal anchor that is aligned with a members' monetary policy framework. Unlike the existing review-based approach to monetary policy conditionality through ICCs for countries with IT regimes, the proposed MPCC would provide the option to choose either a monetary aggregate or an inflation objective as the central path in the design of the consultation clause (see Table 3). This would particularly appeal to evolving regimes that are often experimenting with multiple (flexible) operating targets and have not explicitly committed to an inflation target. The MPCC would provide

[28] The use of tripwires (including NDA, NCG, etc.) would provide additional check for country-specific risks.

additional flexibility by not tying the central path of the consultation clause to a publicly announced inflation target and thus create room for evolving regimes to build credibility while structures are put in place to enhance transparency and accountability.

Table 3. Comparison of Conditionality: Traditional Money, MPCC, and ICC

	Traditional Monetary Program (NIR/NDA)	MPCC	ICC
External Reserves Target (NIR/NFA)	PC	PC	PC
NDA Target	PC if no reserve money PC	Optional as tripwire (IT)	Optional as tripwire (IT)
Reserve Money Target	PC if no NDA PC or IT with NDA PC	Single band (when no inflation band is set)	Not Applicable
Inflation Target Bands	Not applicable	Normally single band (when no reserve money band is set), but optional inner band	Inner and outer bands in a majority of cases
Board Consultation	Not applicable	When target band is not observed	When outer inflation band is not observed
Staff Consultation	Not applicable	Not required (except where inner band option is chosen) but staff maintains continuous dialogue with authorities	When inner band is not observed but outer band is observed
Waivers	For PCs not observed	For PCs not observed	For PCs not observed
Corrective Actions (PCs)/ Remedial Actions (consultation clause)	May be required for the waiver, if PCs not observed	Required to conclude monetary policy consultation when the deviation from the band cannot be explained by compensating factors, or for waiver of non-observance of NIR PC	Required to conclude inflation consultation when target is not expected to be met, or for waiver of non-observance of NIR PC
Misreporting	Applies to PCs and prior actions	Applies to NIR PC, prior actions and band target variable	Applies to NIR PC, prior actions and outer inflation target band

40. The proposed MPCC framework will have implications for misreporting risks and safeguards on the use of Fund resources:

- The replacement of NDA and/or RM as performance criterion with an MPCC would reduce program monetary data that are subject to misreporting, while NIR data and other program targets will continue to be subject to the misreporting framework.[29]

- To address this risk, a formal consultation with the Executive Board would be a condition for completing the program review and thus for resuming purchases or disbursements under the terms of the relevant Fund arrangement, and the Fund's GRA and PRGT misreporting frameworks would continue to apply in the context of the target variable subject to a consultation (including the application of the *de minimis* misreporting policy).[30]

- Risks relating to use of Fund resources could arise from removing the PC (ceiling) on NDA. In cases where the NIR floor is set with a considerable margin for intervention, there is a risk that in the event of un-programmed reserve losses, the contractionary impact on monetary aggregates is sterilized by an expansion of NDA, when in fact, a tightening of monetary policy might have been appropriate, depending on the nature of the shock. To avoid unnecessarily accommodative monetary policy under the MPCC where there are significant margins used in setting the NIR floor, there would be a commitment not to loosen monetary conditions and to consult with staff if accumulated intervention reached a pre-defined threshold over any fixed time period.[31] Where margins are relatively modest, indicating generally flexible exchange rates, such a commitment would normally be unnecessary. Even in these cases, however, an NDA ceiling could be retained as an indicative target if there are significant risks to external stability.

- Another risk that might arise is that over-performance of NIR leads to pressures to expand one or more elements of NDA for policy purposes, e.g., quasi-fiscal operations. This risk should be addressed through a thorough staff assessment of the independence of the central bank prior to adoption of the MPCC, including the staff assessment of the legal framework and autonomy that features in safeguards assessments, if available.

[29] Data for the period 2008–13 indicate that there were zero cases of misreporting of net domestic assets or reserve money in PRGT and GRA programs.

[30] The misreporting framework would apply to the following situation: a member, when providing information on the target, represented that there was no deviation from the outer band, and based on such information, a consultation with the Executive Board did not take place and the member made the purchase or obtained the disbursement upon completion of the relevant review, but it was later proven that there was deviation from the outer band and that a consultation with the Board was needed in order to complete the relevant review. As a result, such purchase or disbursement would be noncomplying and subject to the misreporting policy.

[31] As used in the 2002 Fund-supported program in Brazil in the context of an ICC (EBS/02/166, paragraph 35).

41. Staff anticipates that the MPCC would be introduced in countries after consideration of country-specific circumstances relative to a "standard." In particular, there would be clear benefits from adopting an MPCC in countries that can more clearly signal the monetary policy stance through the policy rate, and have the capacity to adjust policies in a flexible way to achieve their monetary policy objectives. In contrast, there could be costs to introducing an MPCC and monetary targets may be appropriate in countries where commitment to low and stable inflation is often compromised by other objectives and data quality is weak. Evidence supporting the position that this "standard" was met in particular countries would include a strong track record of policy implementation, a relatively low and stable inflation rate, and progress toward basic institutional and structural guideposts in these areas**:**

- *Central bank institutional set up*: de facto central bank autonomy in monetary operations and setting the policy rate; price stability as the de facto primary objective of monetary policy; structures to enhance communication and transparency of monetary policy decisions well aligned with the way monetary policy is designed and implemented;

- *Macro and financial development and stability*: absence of high dollarization, a set of monetary and foreign exchange instruments for policy implementation allowing the central bank to be in a position to effectively manage liquidity; sound financial relationship between the central bank and the government that eschews monetary financing; stable financial sector, in particular the absence of systemic weaknesses; and,

- *Data and analytical capacity*: availability of high-frequency data; quality of other macro data; liquidity forecasting, and developing understanding of inflation and the transmission channels of monetary policy.

42. Programs could also support a strengthening of performance to meet the "standard" required for an MPCC. In cases where the policy implementation track record has been lacking in some respects or where moderate gaps in the institutional set-up exist, the MPCC could be considered provided that the authorities are undertaking, or are committed to undertake, reforms that would address these limitations.[32]

43. There will also be cases when, in the staff's judgment, members have not made sufficient progress toward the guideposts for adopting a more flexible conditionality framework. When advising against premature adoption of the framework and maintaining monetary performance criteria, staff could consider advising structural benchmarks focused on adoption of institutional reforms in central banks, strengthening the operation of financial markets, and building statistical and analytical capacity in the form of a road map to modernizing monetary policy.

[32] Batini and Laxton (2007) note that many EM countries developed their policy framework substantially as they improved their nascent inflation targeting regimes.

44. Most countries with evolving monetary policy regimes are already introducing reforms to support adoption of flexible monetary policy implementation. An illustrative case is Armenia, where there have been clear drawbacks to the traditional monetary targeting and the authorities are developing a more flexible monetary framework, backed by reforms in key areas (Box 4). As Armenia has demonstrated a strong policy implementation track record over the years, a new Fund-supported program envisages a move toward a consultation clause framework centered around inflation, while initially maintaining a performance criterion on NDA (with a margin) and dropping the indicative target on reserve money.

Box 4. Armenia—Transition to Flexible Monetary Policy

In the mid-2000s, the Central Bank of Armenia's efforts to sterilize foreign exchange purchases slowed the pace of appreciation brought about by rising remittances and capital inflows. Moreover, in the context of favorable macroeconomic conditions and elevated confidence in the domestic currency, money demand was changing rapidly, making it difficult to pin down the relation between money and inflation. The reserve money targets were repeatedly not observed, due to foreign exchange purchases and the injection of dram, but inflation remained low due to higher money demand. The frequent non-observance of reserve money targets in the presence of low inflation led to a loss of credibility for the money targeting regime; to continue to follow the target would have implied that monetary policy was too tight. Accordingly, in 2006 the Central Bank of Armenia elected to move to full-fledged IT over the medium term, subject to a transition period of IT-lite.

Since then, there have been a number of institutional and operational reforms. First, the repurchase rate was chosen as the operational target, with an interest rate corridor using standing facilities. With the support of Fund TA, the Central Bank of Armenia has progressively strengthened the new policy framework. It has developed its modeling/forecasting capacity, started issuing quarterly inflation reports, and published minutes of its board meetings. The Central Bank of Armenia has also made efforts to improve the transmission mechanism by enhancing liquidity management, narrowing the interest rate corridor, promoting activity on the interbank market, and taking steps to reduce dollarization.

The Fund team and authorities plan to build on the significant gains made through the reforms introduced by moving toward a review-based monetary conditionality in the next Fund-supported arrangement. Staff has reached understandings with the authorities on key components of the new Fund-supported program that would: drop the reserve money as an indicative target and introduce an indicative target band on headline inflation, retain the NIR PC, and retain the NDA PC but introduce a small margin to limit the need for abrupt operations to meet targets. Reserve money would, however, continue to be shown in the PC table as a memorandum item.

There are also plans to continue to strengthen both institutional and operational capacity to support the eventual move toward an MPCC or ICC framework. The focus of reforms would be on monetary operations (possibly further narrowing the interest rate corridor and development of longer-term instruments) and improving market and public communications.

45. The traditional framework for monetary conditionality would continue to be an option in countries where it has proven to be effective in achieving program objectives. Even in those countries that maintain traditional money targeting conditionality, however, there could be scope for enhanced monetary policy analysis, as these countries strengthen their policy frameworks.

IMPLICATIONS FOR TECHNICAL ASSISTANCE AND RESOURCES

46. Enhanced central bank capacity for monetary policymaking is needed in evolving monetary regimes. Building institutional capacity for monetary policy analysis and implementation in countries with evolving monetary policy frameworks requires in-depth training and TA (see Appendixes VII and VIII on data requirements and existing capacity-building activities for monetary policy frameworks). Coordinated interdepartmental TA and training are already ongoing in SSA countries, where RES, MCM, and ICD work with country teams and SSA central banks to strengthen capacity in model-based forecasting and policy analysis, and monetary policy implementation. For example, RES has a pilot program with the Central Bank of Kenya, involving the training of staff to prepare reports for the monetary policy committee; MCM and RES are collaborating with the authorities in Uganda and Mozambique to develop forward-looking monetary policy frameworks. ICD has also stepped up its offerings of the Monetary and Exchange Rate Policies (MERP) course, in support of SSA central banks' staff and is exploiting synergies with TA efforts from other departments. Complementing these efforts, a large increase in MCM TA in FY14 reflects increased assistance to central banks in introducing elements of forward-looking monetary policy. SSA has received almost half of MCM's TA in central bank modernization in the last four fiscal years.

47. Training and TA (capacity development) are also being provided in other regions. ICD's MERP, and the more advanced model-based monetary policy analysis (MPA) course, have been offered in a range of developing countries. MCM offers TA on a broad range of issues related to monetary and foreign exchange policy and operations, central bank governance, reserves management, and development of financial market infrastructure.

48. Continued efforts at strengthening capacity development in this area are ongoing and planned. In 2014, ICD will offer the MPA course to Fund staff at an SSA regional training event, and as a global course at headquarters. RES is extending its pilot program to at least three additional SSA countries (Mozambique, Rwanda, and Tanzania). MCM is placing several resident advisors in regions and countries with significant central bank reform programs, and is conducting assessments of operational arrangements for monetary policy conduct in several countries covered by AFRITAC South. An interdepartmental committee will look at ways to enhance synergies between training, TA, and peer-to-peer learning to support operational priorities of country teams and authorities, possibly through a product jointly developed by area and functional departments.

49. The proposed review-based approach to monetary policy conditionality through the MPCC could have some resource implications for capacity development. However, since relatively few Fund arrangements are expected to adopt this new conditionality framework in the near term, the resource implications are expected to be manageable within existing budget envelopes. As the new framework is a response to developments already occurring in many countries, in these cases it would likely not be a catalyst for new capacity development demands. Since in other cases, however, there may be an increased demand for resources, departments

providing capacity development in consultation with area departments could seek to prioritize resources for this area.[33] Developing ways to leverage current resources—such as online collaborative sites for peer-to-peer learning and in-depth training of a small number of staff in an area department who could assist their colleagues—could also help. However, resource implications, particularly for area departments, should be monitored for initial Fund arrangements with the MPCC option.

ISSUES FOR DISCUSSION

50. Directors may wish to discuss the following issues:

- Do Directors see merit in employing a review-based approach to program monetary conditionality in the form of an MPCC for assessing monetary policy in place of performance criteria, for members with an evolving monetary policy regime that have developed a good track record of policy implementation underpinned by operational autonomy and technical and institutional development of the central bank?
- Do Directors agree to a measured approach to the introduction of the MPCC option, subject to review after sufficient experience has been gained?
- Does the proposed framework provide sufficient safeguards on the use of Fund resources, including through the misreporting framework?
- Do Directors believe that the provision of TA and capacity building for monetary policymaking is presently adequate, providing that efforts are made to prioritize such assistance in line with members' needs?

[33] As the scale of operations is rising in some Regional Technical Assistance Centers (RTACs) thanks to additional donor contributions, it may also be possible in some cases to get approval from RTAC Steering Committees to allocate more RTAC resources to the monetary policy area. For example, this approach was successfully utilized in the case of AFRITAC East.

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Appendix I. Country Classification by Monetary Policy Regimes (Based on 2013 AREAER) 1/

Monetary aggregate target		Other monetary regimes		Crawling Peg/Crawl-like arrangement 3/	
LIC	EM	LIC 2/	EM	LIC	EM
Afghanistan	Argentina	Bolivia	Angola	Ethiopia	Botswana
Bangladesh	Paraguay	Haiti	Belarus	Honduras	Croatia
Burundi	Seychelles	Lao	Costa Rica	Nicaragua	Jamaica
Congo, DR	Sri Lanka	Mauritania	Azerbaijan		Kazakhstan
Gambia	Ukraine	Myanmar	Egypt		
Guinea	China	Solomon Islands	India		
Kenya			Malaysia		
Kyrgyz Republic			Mauritius		
Madagascar			Russia		
Malawi			Tunisia		
Mozambique			Mongolia		
Nigeria			Pakistan		
Papua New Guinea					
Rwanda					
Sierra Leone					
Tajikistan					
Tanzania					
Uzbekistan					
Uganda					
Yemen					
Zambia					

1/ Countries in this table have monetary policy regimes (in 2011) that provide scope for independent monetary policy. These countries would have to be assessed to have made significant progress toward meeting the guideposts before adopting an MPCC framework.

2/ Excludes Somalia (no relevant information on the monetary policy framework was available) and Sudan (the monetary policy framework is primarily a nominal exchange rate anchor vis-à-vis the U.S. dollar.

3/ Countries with crawling peg or crawl-like arrangements (monetary policy framework classified as exchange rate anchor) but with scope for independent monetary policy.

Appendix II. Additional Empirical Analysis for the Landscape and Performance of Program Conditionality

The relation between inflation and money growth is investigated over a long period (about 10 years) and a shorter period (1 year) using cross section ordinary least squares (OLS) and panel generalized least squares (GLS) regressions respectively, for the period 1990–2012. The variables used in the regression analysis are inflation (defined as the year over year (y/y) change in Consumer Price Index (CPI), money growth (y/y change in broad money), output growth (y/y change in real GDP), financial development (domestic credit to the private sector as a share of GDP), public debt (gross general government debt as a share of GDP), and commodity price inflation (y/y changes in commodity fuel price index). All data is from the World Economic Outlook database of the IMF except for domestic credit to private sector, which comes from the World Bank's World Development Indicators.

Table II.1 presents results for the cross section regressions. First, following the existing literature, inflation period averages are regressed against money and income growth period averages. Although estimated coefficients for both variables have the expected sign and are significant for the whole period as well as for the sub-periods (1990–2002 and 2002–2012), the estimated coefficient for money growth declines by more than 40 percent in the recent period (Specification I). This result holds when the presence of countries with high inflation (defined as countries with inflation greater than or equal to the sample median of 10 percent) and low financial development (countries with domestic credit to the private sector as a share of GDP lower than or equal to the sample median of 18 percent)—which generally leads to a significantly stronger relation between inflation and money growth—are accounted for (Specifications II and IV). Estimated coefficients for high and low money growth countries (countries with money growth greater than or equal to the median of 17 percent), high and low public debt (countries with public debt as a share of GDP greater than or equal to the sample median of 46.5 percent), and EM countries and LICs are not statistically different from each other (Specifications III, VI, and VII).

The results for the panel estimates are shown in Table II.2.[34] First, a fixed effect model is estimated using yearly observations of inflation, money, and income growth for all countries in the sample. In line with the cross section results, the coefficients for money growth and its lags are positive and highly significant for 1990–2012, but decrease over time by about half in the last decade

[34] The use of panel data requires checking for the existence of unit root variables. Since some of the variables in the data set are stationary and some are not, standard nonstationary panel data methods could not be implemented and a fixed effect model using yearly observations for all countries in the sample is employed.

(Specification I).[35] This result is not driven by the inclusion of high inflation/high money growth/low financial development countries (Specifications II, III, and IV), and is robust to adding commodity prices (Specification VII). In general, the association between inflation and money growth does not vary significantly with the country classification by high debt level (Specification V) and by income level (Specification VI).

[35] We test the significance of up to four lags of money (income) growth, but only two (one) lags are statistically significant in most cases.

Table II.1 Inflation and Money Growth: Cross Section Estimates 1/

Dependent variable: Inflation	Specification I			Specification II			Specification III			Specification IV			Specification V			Specification VI			Specification VII		
	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012
Constant	1.580	1.149	3.049**	3.419	2.794	4.251***	-0.036	0.577	2.760	0.568	0.835	4.164***	2.219	2.521	5.274***	1.768	2.642	5.045***	2.348	2.019	5.217***
	(2.75)	(3.41)	(1.41)	(2.62)	(3.46)	(1.22)	(-0.01)	(0.14)	(1.43)	(0.41)	(3.54)	(1.35)	(0.71)	(0.77)	(4.47)	(0.60)	(0.73)	(4.38)	(0.79)	(0.62)	(4.32)
Income growth	-0.729*	-0.831**	-0.649***	-0.419	-0.598	-0.441*	-0.721*	-0.852**	-0.650***	-0.686*	-0.831**	-0.668***	-0.348	-0.574	-0.463**	-0.355	-0.610	-0.439**	-0.333	-0.598	-0.448**
	(0.40)	(0.39)	(0.22)	(0.38)	(0.45)	(0.22)	(-1.80)	(-2.11)	(-2.91)	(0.15)	(0.38)	(0.19)	(-0.90)	(-1.25)	(-2.23)	(-0.98)	(-1.49)	(-2.14)	(-0.86)	(-1.33)	(-2.30)
Money growth	0.735***	0.880***	0.508***	0.472***	0.676***	0.302***	0.854***	0.929***	0.534***	0.748***	0.869***	0.486***	0.475***	0.638***	0.286***	0.468***	0.629***	0.275***	0.482**	0.625***	0.308***
	(0.15)	(0.17)	(0.07)	(0.17)	(0.19)	(0.07)	(2.82)	(3.60)	(3.96)	(0.09)	(0.17)	(0.07)	(0.16)	(3.12)	(4.15)	(2.94)	(2.78)	(3.48)	(2.59)	(2.77)	(3.76)
Money growth *High inf.				0.187***	0.168*	0.143***							0.196***	0.185**	0.141***	0.192***	0.182**	0.142***	0.200***	0.174*	0.141***
				(0.06)	(0.09)	(0.03)							(0.05)	(2.01)	(4.46)	(3.69)	(2.07)	(4.18)	(3.64)	(1.89)	(4.41)
Money growth*High money growth							-0.070	-0.036	-0.015												
							(-0.66)	(-0.37)	(-0.25)												
Money growth *High fin. dev.										0.061	0.053	-0.08**	0.077	0.076	-0.075**	0.080	0.072	-0.071*	0.064	0.110	-0.089**
										(3.31)	(0.12)	(0.04)	(0.09)	(0.68)	(-2.21)	(1.01)	(0.65)	(-1.92)	(0.59)	(0.59)	(-2.23)
Money growth *High public debt																0.060	0.026	0.027			
																(0.87)	(0.24)	(0.71)			
Money growth *LIC dummy																			-0.025	0.063	-0.033
																			(-0.25)	(0.37)	(-0.72)
Number of countries	64	63	64	64	63	64	63	62	63	63	62	63	64	62	64	64	63	64	64	63	64
Adjusted R^2	0.589	0.627	0.552	0.627	0.635	0.619	0.589	0.623	0.569	0.589	0.623	0.569	0.632	0.635	0.635	0.634	0.629	0.633	0.626	0.632	0.634

Sources: World Economic Outlook and IMF staff calculations.

1/ Value of t statistics reported in the parenthesis are calculated using heteroscedasticity-consistent standard errors; * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

Table II.2. Inflation and Money Growth: GLS Estimates 1/

Dependent variable: Inflation	Specification I			Specification II			Specification III			Specification IV			Specification V			Specification VI			Specification VII		
	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012	1990-2012	1990-2002	2002-2012
Constant	-1.266	0.782	3.658**	-1.533	0.144	3.575***	-1.400	0.036	3.980**	-1.581	0.315	3.324**	-1.612	0.248	3.594**	-1.660	1.286	4.069***	0.182	5.325*	3.076*
	(-0.57)	(0.30)	(2.43)	(-0.68)	(0.05)	(2.34)	(-0.64)	(0.01)	(2.59)	(-0.77)	(0.12)	(2.10)	(-0.88)	(0.09)	(2.22)	(-0.83)	(0.47)	(2.74)	(-0.10)	(-1.75)	(-1.98)
Income growth	-0.52***	-0.432**	-0.225**	-0.484***	-0.402*	-0.238**	-0.493***	-0.418*	-0.201*	-0.493***	-0.406*	-0.234**	-0.492***	-0.381*	-0.244**	-0.479***	-0.344	-0.222**	-0.468***	-0.362	-0.303***
	(-4.56)	(-2.05)	(-2.18)	(-4.17)	(-1.84)	(-2.22)	(-4.32)	(-1.93)	(-1.99)	(-4.21)	(-1.82)	(-2.49)	(-4.21)	(-1.68)	(-2.54)	(-4.09)	(-1.60)	(-2.41)	(4.88)	(1.45)	(3.06)
Income growth (-1)	-0.399***	-0.418***	-0.085	-0.367***	-0.389***	-0.097	-0.376***	-0.374***	-0.072	-0.373***	-0.371***	-0.116	-0.375***	-0.366***	-0.104	-0.369***	-0.355***	-0.105	-0.351***	-0.590***	-0.050
	(-3.50)	(-3.10)	(-0.70)	(-3.19)	(-2.95)	(-0.82)	(-3.21)	(-2.77)	(-0.60)	(-3.30)	(-2.81)	(-1.01)	(-3.32)	(-2.79)	(-0.92)	(-3.32)	(-2.75)	(-0.92)	(3.58)	(3.43)	(0.39)
Money growth	0.256***	0.335***	0.025	0.236***	0.449***	0.046	0.260***	0.324***	-0.019	0.148	0.464***	0.035	0.105	0.394***	0.098	0.200*	0.413**	0.170*	0.065	0.387*	0.039
	(4.06)	(4.19)	(-0.58)	(3.37)	(3.68)	(0.67)	(3.13)	(2.68)	(-0.32)	(1.29)	(3.24)	(0.52)	(0.95)	(2.70)	(1.34)	(1.71)	(2.40)	(1.68)	(-0.55)	(-1.88)	(-0.57)
Money growth (-1)	0.397***	0.393***	0.229***	0.287***	0.189**	0.292***	0.280***	0.277***	0.133*	0.26***	0.307**	0.209***	0.220**	0.187	0.224***	0.291***	0.239	0.290***	0.290***	0.362***	0.201***
	(8.82)	(6.05)	(4.58)	(4.70)	(2.49)	(3.32)	(4.31)	(2.95)	(1.99)	(2.92)	(2.42)	(3.03)	(2.34)	(1.31)	(2.67)	(2.91)	(1.61)	(4.14)	(-3.54)	(-3.04)	(2.91)
Money growth (-2)	0.229***	0.15*	0.118**	0.232***	0.156**	0.121***	0.231***	0.148*	0.116**	0.223***	0.156**	0.117***	0.162**	0.190*	0.045	0.130*	0.016	0.040	0.215***	0.134	0.121***
	(4.67)	(1.97)	(2.62)	(4.73)	(2.08)	(2.81)	(4.81)	(1.97)	(2.58)	(4.74)	(2.11)	(2.72)	(2.53)	(1.79)	(0.83)	(1.94)	(0.19)	(0.48)	(-4.78)	(-1.60)	(-2.81)
Money growth *High inf.				0.032	-0.158	-0.029				0.075	-0.17	-0.027	0.083	-0.159	-0.022	0.083	-0.202	-0.015	0.102	-0.257	-0.027
				(0.27)	(-1.08)	(-0.34)				(0.60)	(-1.17)	(-0.33)	(0.71)	(-1.10)	(-0.28)	(0.61)	(-1.36)	(-0.18)	(-0.80)	(1.21)	(0.32)
Money growth *High inf. (-1)				0.183*	0.348**	0.097				0.191*	0.286**	-0.049	0.187*	0.294**	-0.052	0.197*	0.258*	-0.037	0.116	0.191	-0.044
				(1.87)	(2.64)	(-0.97)				(1.82)	(2.10)	(-0.56)	(1.91)	(2.12)	(-0.61)	(1.81)	(1.76)	(-0.46)	(-1.18)	(-1.39)	(0.50)
Money growth *High money growth							-0.003	0.049	0.057												
							(-0.03)	(0.33)	(0.75)												
Money growth *High money growth (-1)							0.180*	0.231	0.125												
							(1.86)	(1.65)	(1.45)												
Money growth *High fin. dev.										0.181	-0.01	0.023	0.177	0.003	0.026	0.162	0.056	-0.085	0.267*	0.113	0.010
										(1.36)	(-0.08)	(0.26)	(1.53)	(0.02)	(0.31)	(1.25)	(0.37)	(-0.88)	(-1.85)	(-0.58)	(-0.11)
Money growth *High fin. dev. (-1)										0.044	-0.202*	0.179	0.042	-0.154	0.178	0.044	-0.131	0.122	0.038	-0.315***	0.190*
										(0.42)	(-1.70)	(1.61)	(0.46)	(-1.21)	(1.65)	(0.39)	(-0.89)	(1.26)	(-0.34)	(2.69)	(-1.73)
Money growth*High public debt													0.085	0.106	-0.154*						
													(0.82)	(0.80)	(-1.81)						
Money growth*High public debt (-1)													0.088	0.160	-0.038						
													(1.21)	(1.52)	(-0.49)						
Money growth*High public debt (-2)													0.114	-0.049	0.148*						
													(1.24)	(-0.35)	(1.70)						
Money growth *LIC dummy																-0.079	0.072	-0.213**			
																(-0.59)	(0.40)	(-2.15)			
Money growth *LIC dummy (-1)																-0.047	0.097	-0.139**			
																(-0.46)	(0.66)	(-2.28)			
Money growth *LIC dummy (-2)																0.153*	0.217	0.099			
																(1.70)	(1.64)	(1.02)			
Commodity Price Index																			-0.021*	-0.139***	0.026**
																			(1.91)	(3.56)	(-2.16)
Commodity Price Index (-1)																			-0.026**	-0.024*	-0.000
																			(3.25)	(1.85)	(0.00)
Commodity Price Index (-2)																			-0.056***	-0.232***	-0.012
																			(4.67)	(3.87)	(0.92)
Number of observations	1210	525	685	1210	525	685	1210	525	685	1210	525	685	1210	525	685	1210	525	685	1083	398	685
Number of countries	64	62	64	64	62	64	64	62	64	64	62	64	64	62	64	64	62	64	64	62	64
Adjusted R^2	0.365	0.300	0.124	0.371	0.318	0.126	0.370	0.309	0.128	0.376	0.322	0.135	0.384	0.324	0.151	0.378	0.330	0.156	0.355	0.281	0.145

Sources: World Economic Outlook and IMF staff calculations.

1/ Value of t statistics reported in the parenthesis are calculated using heteroscedasticity-consistent standard errors; * significant at 10 percent; ** significant at 5 percent; *** significant at 1 percent.

Appendix III. List of Countries Used in Analysis of Program Performance[36]

List of 105 Fund-supported programs

PRGT (63)

NDA target (28)		**NDA and Money targets (22)**	
Albania	2002	Armenia	2005
Albania	2006	Armenia	2010
Bangladesh	2003	Bangladesh	2012
Burundi	2004	Burundi	2012
Burundi	2008	Congo, Democratic Rep.	2009
Gambia	2002	Georgia	2004
Gambia	2007	Ghana	2003
Gambia	2012	Guinea	2007
Georgia	2012	Haiti	2006
Guinea	2012	Haiti	2010
Honduras	2004	Kyrgyz Republic	2005
Honduras	2010	Kyrgyz Republic	2011
Kenya	2003	Malawi	2005
Kenya	2011	Malawi	2010
Madagascar	2006	Malawi	2012
Mauritania	2006	Moldova	2006
Mauritania	2010	Moldova	2010
Nicaragua	2002	Mozambique	2004
Nicaragua	2007	Sao Tome and Principe	2009
Sao Tome and Principe	2005	Tanzania	2003
Sierra Leone	2006	Uganda	2010
Sierra Leone	2010	Zambia	2008
Solomon Islands	2010		
Solomon Islands	2011	**NDA and ICC (1)**	
Tajikistan	2002	Ghana	2009
Tajikistan	2009		
Yemen	2010		
Zambia	2004		

Money targets (12)	
Afghanistan	2006
Afghanistan	2011
Mozambique	2007
Mozambique	2010
Nigeria	2005
Rwanda	2002
Rwanda	2006
Rwanda	2010
Tanzania	2007
Tanzania	2010
Uganda	2002
Uganda	2006

GRA (42)

NDA target (17)		**ICC (12)**	
Bolivia	2003	Brazil	2002
Costa Rica	2009	Colombia	2003
Croatia	2003	Colombia	2005
Croatia	2004	Guatemala	2009
Dominican Republic	2003	Hungary	2008
Dominican Republic	2009	Peru	2004
Georgia	2008	Peru	2007
Guatemala	2002	Romania	2009
Guatemala	2003	Romania	2011
Honduras	2008	Serbia, Republic of	2009
Iraq	2010	Serbia, Republic of	2011
Jamaica	2010	Turkey	2005
Mongolia	2009		
Pakistan	2008	**No NDA/ RM target (2)**	
Paraguay	2003	Angola	2009
Paraguay	2006	Macedonia (FYR)	2011
Serbia and Montenegro	2002		

Money targets (4)	
Seychelles	2008
Seychelles	2009
Sri Lanka	2009
Ukraine	2008

NDA and Money targets (7)	
Armenia	2009
Dominican Republic	2005
Ukraine	2010
Argentina	2003
Romania	2004
Uruguay	2002
Uruguay	2005

[36] Years in table refer to year of program request.

Appendix IV. Evolving Monetary Policy Regimes in Fund-Supported Programs: Country Case Studies

Fund conditionality has not consistently provided an appropriate policy anchor for some countries with evolving monetary policy regimes. The country cases of Dominican Republic, Moldova, and Uganda developed more flexible monetary policy regimes during Fund-supported programs, while in the case of Tanzania, minor changes between period average and end-of-period reserve money targets were useful in making money targeting more effective. Program conditionality also evolved. In some cases there was a lag: the Fund-supported program targeted different intermediate targets than those that were the primary focus of the authorities, which in turn led to conflicting signals being sent to market participants and a lack of clarity on monetary policy objectives (Armenia, Moldova, and Uganda). These cases could have benefitted from a monetary policy consultation clause that would have: (i) clarified the objectives of monetary policy; (ii) supported the development of policy rates; and, (iii) provided a mechanism to review the consistency of program targets with macroeconomic objectives and take remedial actions as necessary.

Uganda

Strong foreign exchange inflows and volatile external demand in 2007 made it clear that rigid reliance on a RMP in Uganda might not provide sufficient flexibility to respond to shocks. To increase flexibility of the policy framework and to limit the cost of sterilization, NDA was introduced as the near term operating target, coupled with a benchmark objective for reserve money with a ±5 percent variation margin. In response, the conditionality in the Fund-supported program was adjusted—NDA was set as a performance criterion and reserve money as an indicative target.

This step was generally perceived as a part of the early transition stages to inflation targeting. In 2009, following a reversal of carry-trade and associated volatility in short-term interest rates, the Bank of Uganda revised the operating procedures for monetary policy. The revisions included the delinking of structural liquidity management from daily-liquidity management. In the flexible approach to RMP, the Bank of Uganda was set to periodically review deviations from the money target to assess the need for a change in the stance of monetary policy. However, flexible money targeting failed to provide a strong anchor and created confusion between multiple operating targets. In 2011, the Bank of Uganda accelerated the adaptation of inflation targeting “lite” and introduced the central bank rate as the policy rate. During the initial stages of transition, the Bank of Uganda and Fund staff agreed that it would be premature to include an inflation consultation clause because the policy framework needed to be strengthened in several different aspects such as central bank independence and operational capacity. Therefore, the program still adopted the traditional

NIR/NDA conditionality with a continued focus on monetary aggregates. This was not very effective—the indicative targets on reserve money were missed 75 percent of the time. Also, it potentially confused the public about the objectives of the central bank and hindered the efforts to build credibility. To alleviate these concerns, the inflation corridor was added as a memorandum item in 2012.

In 2013, the Bank of Uganda requested inclusion of an ICC in the new Policy Support Instrument (PSI) monitoring framework to reflect the current monetary policy framework in place. Backed by Fund TA, it was stated that successful use of the inflation targeting lite framework in monetary management presents a case for moving to inflation as the nominal anchor in the new program—an ICC with a 5 percent medium-term target in lieu of the former PC on NDA—was adopted. The indicative target on reserve money, however, was maintained.

Moldova

The National Bank of Moldova adopted an IT framework in 2010 to contain persistently high inflation. Previously, the National Bank of Moldova had struggled to push consumer price inflation into single digits, while controlling monetary aggregates in the environment of significant remittance inflows. The National Bank of Moldova set its inflation target range at 5 percent ±1 percent for 2010 and then widened its bands to ±1.5 percent in 2012.[37] The widening of the inflation target band was mainly driven by the lagged effect of monetary policy instruments on inflation, CPI basket volatility, and confidence intervals of forecasting models (Figure IV.1).

To achieve the inflation target, the National Bank of Moldova has a relatively wide range of monetary policy instruments. The main instrument is the National Bank of Moldova base rate, which is used as a reference for open market operations. It is complemented by standing facilities, required reserve ratios, and interventions on foreign exchange market. That said, the National Bank of Moldova has mostly intervened on the foreign exchange market to smooth excess foreign exchange volatility and to replenish its reserves in a way consistent with the IT framework.

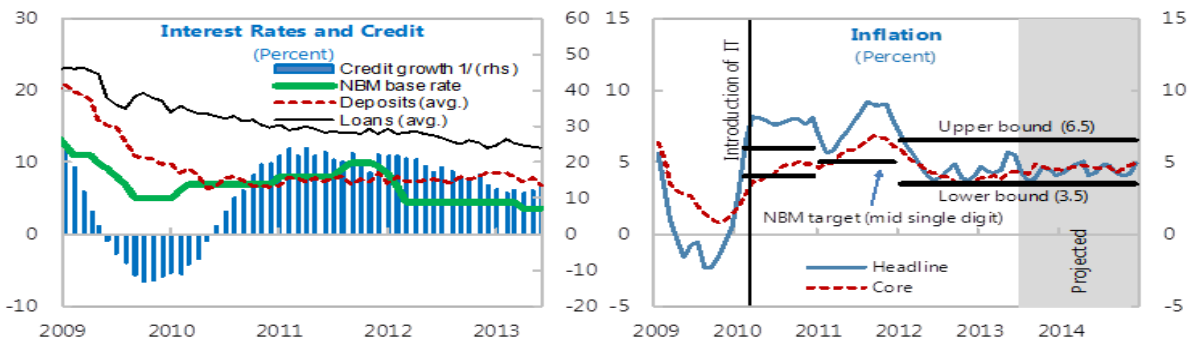
The IT framework has performed relatively well so far, but there are several avenues for its improvement. The framework has contributed to reducing the rate and volatility of inflation since early 2010. However, a relatively weak transmission mechanism and large share of volatile commodity prices in the CPI basket pose challenges for the implementation of monetary policy.

[37] The inflation target for 2011 did not have any range, and the official target for 2011 was inflation rate in mid-single digits.

Measures to improve communication with the public, deepen financial markets, and better calibrate responses to the nature of the shocks could be beneficial to strengthen the impact of monetary policy on the economy.

The monetary conditionality during the Fund's 2010–2013 Extended Credit Facility (ECF)/Extended Fund Facility (EFF) arrangements evolved more slowly than the National Bank of Moldova's policy framework. At the onset of the arrangements, the program conditionality had performance criteria on National Bank of Moldova's net domestic assets and net international reserves along with an indicative target on the ceiling on reserve money. In early 2011, the indicative target on reserve money was dropped due to possible conflicts with the IT framework. However, the National Bank of Moldova continued to closely monitor developments in monetary aggregates in its assessment.

Figure IV.1. Inflation and Interest Rate Developments in Moldova



Sources: National authorities; and IMF staff calculations.
1/ 12-month growth of credit at constant exchange rate and adjusted for write-offs.

Dominican Republic

Beginning in 2012, the Central Bank of the Dominican Republic formally adopted a monetary policy framework based on inflation targeting. Starting from a target of 5.5 percent ±1 percent in 2012, the plan was for the target to fall by 50 basis points every year until 2015, when it would remain at 4 percent ±1 percent. The long-term inflation target of 4 percent was deemed as an "optimal level," sustainable over time and compatible with the potential GDP growth rate (Central Bank of Dominican Republic, Press Release, December 2011). The inflation target in the Dominican Republic is defined as the year-on-year change in the CPI.

The Stand-By Arrangement (SBA) approved in 2009 included a structural benchmark (for June 2010) to formulate a plan to adopt an inflation targeting regime in early 2012. At the time of approval of the SBA, the authorities had yet to establish a proper monetary anchor.[38] The central bank agreed on the need for more clarity in monetary policy formulation. It was thought that the adoption of an inflation anchor would serve the Dominican authorities better than a monetary anchor as the relationship between the monetary base and inflation had weakened after Dominican Republic's banking crisis period in 2004–05. In addition, the exchange rate had also been playing an anchoring role. It was intended that the introduction of a full-fledged inflation targeting regime would clarify objectives and policy instruments (IMF, 2009b).

The SBA adopted traditional monetary aggregates conditionality. At the time of the approval of the SBA, the authorities proposed a monetary program using base money as the anchor. The central bank used the overnight policy rate to signal its policy stance and conducted open market operations to control liquidity. Monetary conditionality consisted of limits on monetary aggregates—a ceiling on NDA and a floor for the level of NIR as a safeguard for the Fund's resources. Alongside the monetary program the authorities followed a de facto crawl-type exchange rate arrangement in which the exchange rate fluctuated within a narrow margin. While the Dominican Republic adopted an official inflation targeting regime in January 2012, the program went off-track in mid-2011. Structural benchmarks included during the SBA to strengthen macroeconomic monitoring and forecasting and improve communication through monetary policy reports proved to be useful after the introduction of the inflation targeting regime.

At the time of program design, the focus was to invigorate growth as the Dominican economy was decelerating rapidly with private credit losing steam and some segments of the credit market almost frozen. Thus, the program included a fiscal impulse (about 1 percent of GDP by end-2009), partly financed by the Fund, and a monetary program for 2010 consistent with the inflation target of 6 to 7 percent. To facilitate the economic recovery, all the increase in the demand for base money was to be satisfied by increases in NDA (i.e., a credit expansion), with the NIR target relatively flat. The pattern was to be reversed in 2011–12 to allow for NIR accumulation.

The authorities' record on achieving the inflation target was mixed in 2010–11 but was achieved in 2012, the inaugural year of the new regime. The central bank met the NIR targets during the

[38] The central bank still needed to gradually introduce more flexibility in the exchange rate to avoid giving the impression that the monetary anchor in the economy was the exchange rate. This was especially important given the low levels of gross reserves (IMF, 2009b).

program but the levels attained proved transitory in a context of fiscal dominance. At two and a half months of imports at end 2012 reserves remained low, particularly for a very open economy.

Tanzania

Tanzania has had long periods of uninterrupted program engagement with the IMF. Supported by a money targeting framework, successive programs focused on macro stabilization policies which reduced inflation from over 20 percent in the mid-1990s to about 6 percent in late 2013. As in other countries in the region (including some with different monetary policy frameworks), inflation rose to high levels during two episodes in the past few years (reaching 20 percent in late 2011), largely as the result of spikes in food and fuel prices. Tanzania's RMP uses reserve money as its operating target, broad money (M3) as its intermediate target, and a variety of instruments to maintain low and stable inflation consistent with balanced and sustainable growth and an inflation objective of 5 percent over the medium term. The Bank of Tanzania attains its reserve money targets primarily by choosing its path of sales of foreign exchange, as well as through repo and other operations.

Monetary conditionality in Tanzania's Fund-supported programs has been adapted somewhat over time. From the mid-1990s through June 2005, a ceiling on NDA of the Bank of Tanzania, a floor on Bank of Tanzania's NIR, and a ceiling on reserve money constituted the monetary conditionalities, with the latter two as performance criteria and the former as an indicative target. In April 2007, as part of Tanzania's request for a PSI, three changes in monetary conditionality were introduced: (i) NDA was dropped as an indicative target; (ii) the ceiling on end-of-quarter reserve money was replaced with period-average reserve money (average of daily reserve money during the last month of the quarter) which reduced the need to use liquidity operations to meet end-of-period targets; and (iii) to respond to shocks to reserve money, symmetric upper and lower bands (±1 percent) were introduced around the projected level of average reserve money.

These changes were primarily technical. The move to period-average reserve money reduced the likelihood of window-dressing or abrupt moves at the end of the quarter. The use of bands provided a safeguard to avoid breaches of the PC (upper band) as the authorities aimed for the middle of the band. These changes seem to have led to a smoother evolution of money aggregates. During the past few years, M3 and reserve money were below the middle of their respective bands most of the time, with M3 more frequently and by larger margins (Figure 10).[39]

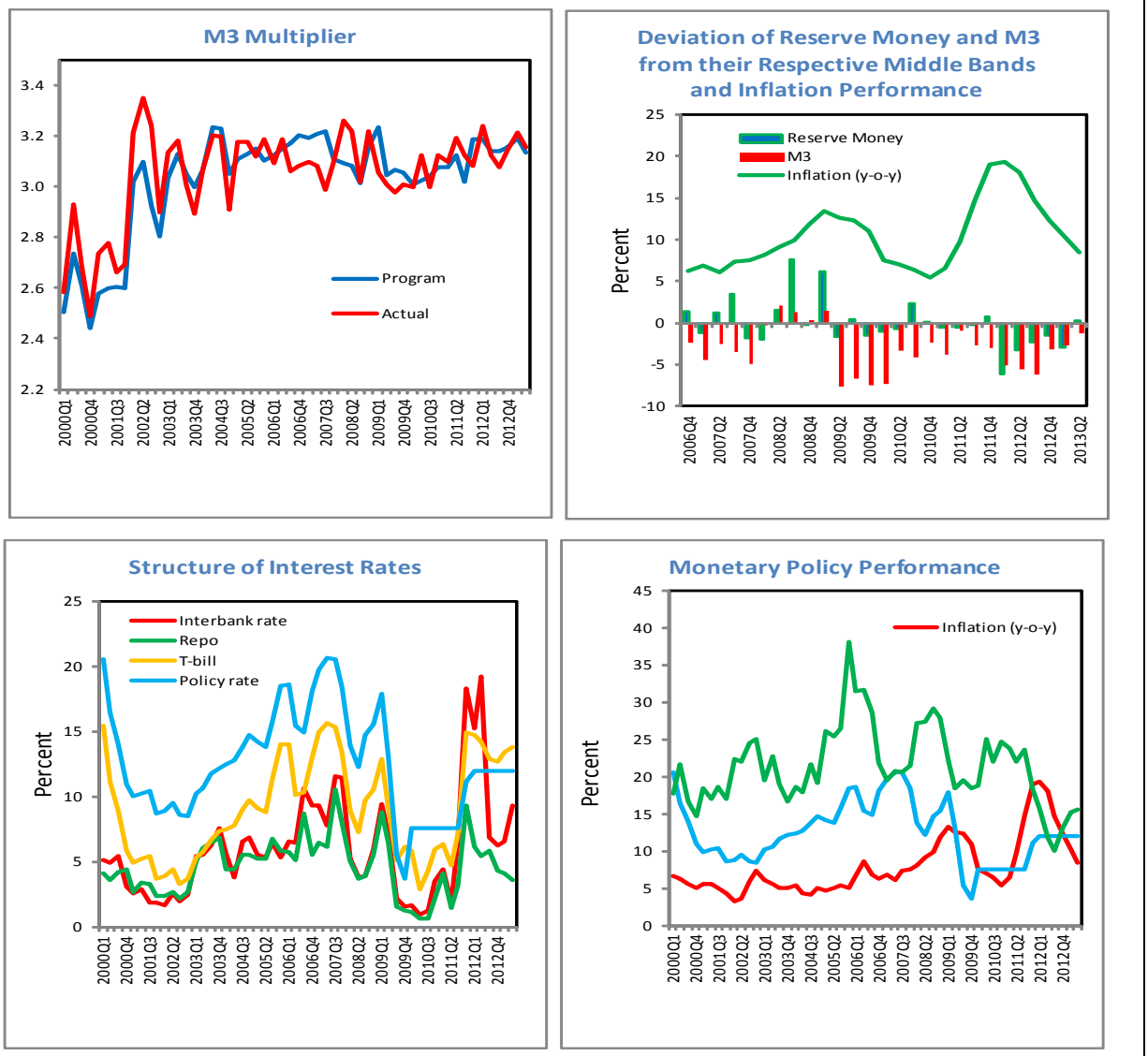
[39] The program did not set bands for M3. The reported M3 bands are derived from the reserve money band and the programmed M3 multiplier.

Programmed reserve money targets were revised upward in 2009 to allow for countercyclical monetary policy, given concerns with spillovers of the global recession as Tanzania's growth declined from 7½ percent in 2008 to 6 percent in 2009. In 2011, following a continued build up of inflationary pressures from international food and fuel prices and domestic food supply shocks, the Bank of Tanzania reduced real money growth and then, faced with a soaring inflation rate of 20 percent in late 2011 and a weakening currency, tightened monetary policy further in the fourth quarter of 2011. Among other measures, the Bank of Tanzania increased its reserve requirements and hiked its bank rate (the policy rate) by 442 basis points to 12 percent. At that time, the overnight interbank market rate, T-bill rates, and repo rate also rose significantly in nominal terms though, with higher inflation, real interest rates subsequently turned negative for a few months (Figure 10). More generally, the policy rate does not seem to be actively used by the Bank of Tanzania, and its impact on other interest rates is limited; in addition, the transmission mechanism of changes in short-term interest rates to broad monetary aggregates and real output is relatively limited.

The deviations from programmed target ranges for reserve money during this period seem to have been consistent with the Bank of Tanzania's commitment to its inflation target and with its preferences regarding the real economy. These include the expansionary deviation at the onset of the global financial crisis and the sequence of contractionary deviations since late 2010 in the face of unanticipated food and fuel price shocks and declines in the growth of money demand (Figure 10). The policy dialogue with Fund staff focused on revising the reserve money targets in light of understandings reached on objectives for inflation and economic stabilization. To gauge the appropriate extent of the revisions, it also sought to draw information from the level of real market interest rates (such as the interbank market rate and the repo rate).

Going forward, and drawing on technical assistance, the Bank of Tanzania intends to complement the current reserve money targeting framework with a more active use of interest rates in implementing its monetary policy. To this end, the Bank of Tanzania has started an internal review of its existing liquidity operations and interest rate structure as part of the process to develop an active policy rate.

Figure IV. 2. Money and Interest Rate Developments in Tanzania



Sources: Tanzanian authorities, IMF Staff Reports (various issues) and IMF Staff estimates.

Appendix V. Implementation of ICC under Fund-Supported Programs

Since the adoption of the review-based approach to monetary policy (IMF, 2000a), 14 Fund-supported programs with nine countries have included an ICC framework, mostly in EM economies and, more recently, in LICs (Table V.1).

In all cases, the ICC targets end of period 12-month consumer price inflation. The central path inflation objective has varied from a maximum of 14.6 percent (Ghana, 2009) to a minimum of 2.5 percent in the cases of Peru (2004, 2005, and 2007) and Romania (2010). In multiyear programs, the central path has tended to reduce over time. Several programs adjusted the central path target one or more times during a calendar year (Guatemala, Romania, and Serbia). Eleven programs set inner and outer bands for staff and board consultations respectively, while three programs set only an outer band (Serbia (SBA, 2011) and two Fund-supported programs in Colombia (SBA, 2003, 2005)). Consultations were held and completed on 17 occasions for non-observance of the inner or outer bands, including seven occasions relating to Turkey's SBA.

Brazil

Brazil adopted inflation targeting in July 1999 as a new nominal anchor in response to the balance of payments crisis of 1998 which rendered the then exchange rate band ineffective. The Fund adapted its conditionality to align with the framework (see Box 2), and Brazil was the first country with a Fund-supported SBA (1999) to adopt the new ICC framework. In the design of Brazil's monetary conditionality, staff and authorities reached an understanding to use the CPI[40] as the central path of the ICC with a symmetric band set relatively wide (±2 percent) due to the broad CPI index chosen as the central path, which was programmed to decline by 0.5 percentage points each quarter, from 8 percent in December 1999 to 6 percent in December 2000 and further to 4 percent by December 2001.[41] Non-observance of this band required formal consultation with the Fund Executive Board, while non-observance of an inner band of ±1 percent required an informal consultation with Fund staff when triggered.[42] NDA was downgraded from a performance criterion to an indicative target and was set in a way to leave room for short-term interest rates to be

[40] The CPI was used for two reasons: (i) ease of understanding by the general public; and (ii) ability to establish inflation target on the basis of a widely known and understood index.

[41] See IMF (2000b).

[42] The program adopted the authorities' official band as the outer band of the ICC.

managed flexibly and in line with the central bank's inflation objective. Staff and authorities reached an understanding that the target could be adjusted on the basis of supply shocks. The consultation mechanism was triggered several times, as a result of various supply shocks during the series of Brazil's Fund-supported programs until 2005.[43] There were four informal consultations with staff and two formal consultations with the Executive Board (Table V.1). While staff consultations were conducted in the context of program reviews, consultations with the Executive Board were accompanied by a letter from the governor of the central bank explaining the reasons for exceeding the band and remedial actions introduced to return to the target path.

Colombia

The 2003 SBA for Colombia included an ICC (also following the Brazilian design). Staff and authorities reached an understanding to set quarterly inflation targets for 2002–03 based on the 12-month CPI. In a slightly modified specification of the ICC, Colombia had a single band (set at ±2 percent) around the central path (which was also the 12-month CPI).[44] The authorities were to conclude consultations with the Executive Board, outlining the proposed policy response before purchases from the Fund, should the observed quarterly CPI deviate from the band. Rather than having an inner band, staff consultation was triggered when there was a "marginal" deviation from this band—leaving room for judgment by staff on what constituted a marginal deviation. There was also an understanding with the central bank to share monthly information on inflationary developments, forecasts, and policy actions. The design also allowed for adjustment to the target based on direct effect of the Value Added Tax (VAT) reform on the CPI. Subsequently, in the 2005 SBA approved for Colombia, the tolerance band was reduced from 2 percentage points, to signal the authorities' commitment to take the necessary actions to meet the inflation target. Unlike Brazil, formal consultation with the Executive Board was never triggered during the period of the program (Table V.1), but the period was characterized by heavy foreign exchange intervention to defend the peso.

[43] IMF (2006).

[44] This central path was not a disinflation path even though it fluctuated between 5.5 percent and 6 percent.

Table V.1. Assessment of ICC Under Fund-Supported Programs

Country	Program type	Other PC/IT**	Inflation Consultation Clause		Target Met/Not Met	Nature of consultation	Outcome of consultation	Central Path of ICC
			Consultation band	Central Path (End-of-year)				
Brazil	SBA (1999)	NDA (IT)	inner band: ±1% outer band: +2%	8.0% (1999) 6.0% (2000) 5.8% (2001)	No (Breached inner band in Dec 2001)			12-month rate of IPCA*
Brazil	SBA (2002)		inner band: ±1% outer band: +2%	6.5% (2002) 5.0% (2003)	No, 3 times: Mar 2002 (Inner), Jun 2002 (Outer), Dec 2002 (Outer)	Mar 2002: Inflation consultation letter Jun 2002: Inflation consultation letter Dec 2002: Inflation consultation letter; Request to modify inflation consultation bands	All reviews completed	12-month rate of IPCA*
Colombia	SBA (2003)		inner band: None outer band: ±2%	5.9% (2003) 5.5% (2004)	Yes			12-month inflation rate
Colombia	SBA (2005)		inner band: None outer band of +2%	5.0% (2005) 4.5% (2006)	Yes			12-month inflation rate
Ghana	ECF (2009)	NDA (IT)	inner band: ±2% outer band: ±3%	14.6% (2009) 9.5% (2010) 8.6% (2011)	Yes			12-month CPI
Guatemala	SBA (2009)		inner band: ±2% outer band: ±3%	5.5%, 2.5%, 0.8% (2009)+ 5.0%, 4.5%, 5.5% (2010)+	Yes			12-month end of period CPI
Peru	SBA (2004)		inner band: ±2% outer band: ±3%	2.5% (2004) 2.5% (2005)	Yes			12-month rate of inflation
Peru	SBA (2007)		inner band: ±2% outer band: ±3%	2.5% (2007)	No, 4 times: March 2007 (Inner),March 2008 (Outer), June 2008 (Outer), Sep 2008 (Outer)	Inflation consultation letter; Request for Waiver of Applicability of PC Inflation consultation letter; Request for Waiver of Applicability of PC Inflation consultation letter; Request for Waiver of Applicability of PC	All reviews completed	12-month rate of inflation
Romania	SBA (2009)		inner band: ±1% outer band: ±2%	4.5% (2009) 2.5%, 3.5%, 8.0% (2010)+	Yes			12-month CPI
Romania	SBA (2011)		inner band: ±1% outer band: ±2%	3.7% (2011) 3.6% (2012)	No: June 2011 (Inner)	June 2011: Consultation with fund staff	All reviews completed	12-month CPI
Serbia	SBA (2009)		inner band: ±2% outer band: ±3%	8.0%, 10.0%, 7.5% (2009)+ 6.5%, 6.0% (2010)+	No, 3 times: Sept 2009 (Outer), Sept 2010 (Outer) and Dec 2010 (Outer)	Sept 2009: Request for waiver for the non-observance of targets and modification of PCs. Sept 2010: No description of consultation Dec 2010 : Inflation consultation letter	All reviews completed	12-month end of period CPI
Serbia	SBA (2011)		inner band: None outer band: ±2%	7.9% (2011)	December actuals not available (program is until 1st review only)			12-month end of period CPI
Turkey	SBA (2005)	Base Money (QPC) NDA (IT)	inner band: ±1% outer band: ±2%	5.0% (2006) 4.0% (2007)	No, 7 times: June 2006 (Outer), Sep 2006 (Outer), Dec 2006 (Outer), March 2007 (Inner), June 2007 (Inner), Sep 2007 (Inner), Dec 2007 (Outer)	Jun, Sep, 2006: Request for waiver for non-observance and modification of PCs. Dec 2006: Request for waiver for non- observance and applicability of PCs March 2007: Request for waiver for non-observance and applicability of PCs Jun, Sep, Dec 2007: Request for waiver for non-observance of PCs	All reviews completed	12-month rate of inflation

*IPCA - consumer price index

** All programs listed had NIR as a QPC

+Central band has been revised several times within the given year

Other notes

Guatemala had a request for modification of the ICC (Review 1) when it's July inflation breached the outer band

Romania (2011) In the second review, they also had requested for a modification in PC's for NFA (but not for ICC).

NIR/NFA (QPC) - Brazil, Columbia, Ghana, Guatemala, Peru, Romania, Serbia and Turkey

Ghana

The Bank of Ghana used the period 2002 and 2007 to introduce transition arrangements to IT before formally adopting IT in May 2007. The transition period was used to re-establish credibility and anchor inflation expectations after a long period of fiscal dominance and very high inflation. In the 2009 ECF for Ghana, the ICC was introduced with a consultation band around the 12-month CPI which was used as the central path.[45] There were both inner (±1 percent) and outer bands (±2 percent). An observed CPI outside the outer band would trigger a formal consultation with the Executive Board, which would interrupt further purchases under the arrangement unless the consultation took place and the relevant program review was completed. The authorities would conduct discussions with the Fund staff when the observed CPI fell outside the inner band. Program conditionality under the ECF arrangement for Ghana also included NCG as an indicative target (a tripwire) due to Ghana's specific risk of lingering fiscal dominance. No consultation was triggered during the program period (Table V.1).

Peru

Peru's IT implementation under the 2004 Fund-supported SBA had unique challenges, as it was implemented during a period characterized by a high degree of dollarization. The ICC design was based upon the design used in Brazil's programs. However, unlike Brazil, Peru's consultation band was significantly wider than the authorities' own official band. The upper consultation band was ±3 percent for Executive Board consultations and ±2 percent for staff consultations, while the official band was only ±1 percent. This relatively wide band gave room for the authorities to intervene heavily to offset the strong upward pressure on the currency, which undermined the inflation target. As expected, the wide band accommodated significant variations in inflation and there were no consultations triggered during the program period. However, the 2007 SBA had one informal consultation with staff and three formal consultations with the Executive Board (Table V.1).

[45] This central path was a disinflation path which was designed to fall from 19.7 percent in June 2009 to 9.7 percent in June 2010 and ultimately to 7 percent by June 2011.

Appendix VI. A Model-Based Approach to Monetary Policy Analysis

This appendix describes a model-based tool that has proven helpful for policy analysis and forecasting in many central banks. As Fund-supported programs move beyond the analysis of money target misses and focus on a broader assessment of the monetary policy stance, IMF country teams could also benefit from adopting a similar model-based approach. The latter would help structure the policy discussions and allow for interactions with the central bank staff at a technical level, yet it does not require explicit acknowledgment in the design of the program. Ongoing applications by selected teams suggest large payoffs to this approach.

Consistent with the modernization of monetary policy described in this paper is a growing need for sound policy analysis and inflation forecasting capacity within central banks, to support policy decisions and facilitate its communication to financial markets. The experience of central banks in many advanced and EM countries that went through a similar process has yielded a set of best practices in this area, namely the development of a forecasting and policy analysis system (FPAS). The FPAS denotes a broad set of processes and arrangements within the central bank, ranging from data collection to the organization of the central bank's research department, to help staff come up with the best possible forecast of inflation and key macroeconomic variables and to make policy recommendations to the bank's senior management.

At the core of the FPAS in countries that start a transition toward forward-looking policy frameworks is a simple quarterly projection model. This model provides a coherent and plausible view of the monetary transmission mechanism.[46] In its simplest form, it consists of an aggregate demand equation, a price setting equation (Phillips curve), a relation between exchange rates and domestic and foreign interest rate differentials, and a policy reaction function that relates the policy variable (typically interest rates) to variables like output and inflation.[47] These models embody the principle that the fundamental role of monetary policy is to provide an anchor for inflation and inflation expectations, and that aggregate demand and monetary policy matter for output and inflation determination in the short run. Many central banks have eventually developed more sophisticated models, e.g., dynamic stochastic general equilibrium (DSGE), but only once the FPAS was solidly in place.

[46] See Laxton, Rose, and Scott (2009) for a thorough description of FPAS. The discussion here focuses narrowly on the macroeconomic model at the center of the FPAS.

[47] See Berg, Karam, and Laxton (2006) for an exposition of a simple model along these lines.

Staff in central banks use these models to: (i) interpret data and assess the state of the economy, including the incidence of various macroeconomic shocks (aggregate demand, supply, external, etc.), and (ii) to help produce macroeconomic forecasts and provide policy recommendations to the senior management of the central bank (i.e., the Monetary Policy Committee (MPC)). Note that the models themselves do not produce the forecasts, as these are based mostly on judgment, especially over the short term (one or two quarters ahead). However, the models are useful for a number of reasons. First, they clarify the link between the forecast and the policy reaction function, the types of shocks, and the structure of the economy. They therefore allow for alternative forecasts (relative to a baseline) that are directly related to alternative assumptions, e.g., about external shocks. Second, the probabilistic nature of the models provides an ideal setting for characterizing uncertainty about the future, e.g., via fan charts and its implications for policy. Third, the systematic use of a coherent model imparts a great deal of discipline into the forecasting process, as it prevents the excessive use of sui generis-type reasoning. Fourth and most important, they ensure consistency between the forecast and the policy recommendations, i.e., they show what path the policy variable must follow for inflation to return to its target over the medium term.

Reflecting the need for such an analysis, various central banks in SSA have partnered with the IMF to develop their own in-house FPAS. These include Kenya, Uganda, Rwanda, Ghana, and Mozambique; other countries are likely to follow. The adoption of FPAS requires considerable training of the staff in how to operate these models, interpret their output, and use them for policy analysis, and should be thought of as a learning process for both staff and the management.

However, staff in some central banks such as Kenya, Uganda, and Rwanda, are already making use of these frameworks for policy analysis and presentations to their MPC. The long-term success of these efforts, i.e., the entrenchment of this type of analysis in the periodic forecasting and policy cycle of these central banks, will depend on the institutional support they receive, especially by the senior management. The usefulness of such tools suggests these efforts will be successful.

Although these models were originally designed for countries that set operational targets on short-term interest rates, recent IMF research has extended their application to hybrid or evolving regimes. Andrle and others (2013) designed an FPAS model for countries that have targets on both reserve money and short-term interest rates, and where ex post adherence to the target is a policy choice. The framework allows for an analysis of money target misses in terms of macroeconomic shocks, which makes it applicable to regimes where the analysis of target misses remain an important dimension of policy analysis.

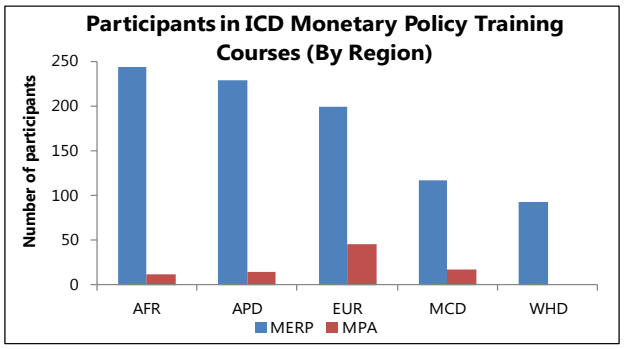
Appendix VII. Technical Assistance and Training on Modernizing Monetary Policy Frameworks

Coordinated TA and Training by RES and ICD in SSA

Interdepartmental initiatives aimed at modernizing monetary policy frameworks in SSA are harnessing synergies between TA and training (IMF, 2013b). These initiatives by RES, ICD, and AFR include: (i) a seminar to train SSA country teams and central bankers from Tanzania, Rwanda, Uganda, and Zambia, followed by two in-depth two-week workshops with forecasting teams from Uganda and Rwanda; (ii) a pilot program with RES and external experts training staff to present forecasting and policy analysis reports to the MPC of the Central Bank of Kenya; (iii) a RES pilot engagement with the Central Bank of Ghana to build institutional capacity for its inflation targeting regime; (iv) online collaborative sites set up to facilitate peer-to-peer learning among trained officials and staff; and (v) internal training and support for AFR desk economists provided by an ICD/RES course on model-based MPA. These efforts are supported by the RES/SPR partnership with the U.K.'s Department for International Development (DFID) to provide relevant research and support close collaboration with LIC policymakers on utilizing these frameworks.[48] To support the TA activities, ICD doubled its delivery of monetary policy courses in SSA during 2013.

ICD Monetary Policy Training Courses

ICD is expanding training in monetary policy. ICD offers a course on MERP, which includes a block on quarterly forecasting models used in central banks. The course is aimed at central bank staff who are "users" of the forecast. A more advanced course on MPA targets model operators, analysts writing monetary policy reports, as well as policymakers. To date, around 1000 participants from LICs and EM countries have participated in the MERP course, and around 100 in the MPA course.



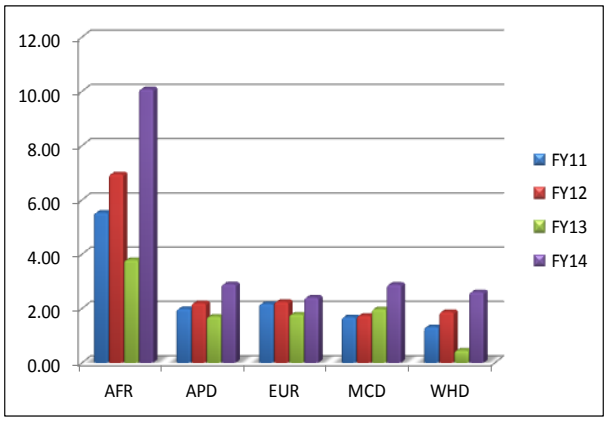
Source: IMF Staff calculations.
Notes: MERP (Monetary and Exchange Rate Policy), MPA (Monetary Policy Analysis), CY 2007- 2014 (Past and Planned).

[48] See http://www.imf.org/external/np/res/dfidimf/

MCM TA in Central Bank Modernization

MCM is providing extensive support to central banks around the world in their efforts to strengthen conformity with best practices for effective monetary policy. Over the last four fiscal years MCM TA on monetary policy related issues has totaled an annual average of about 17.5 FTEs. About half of MCM TA was devoted to strengthening of the operational capacity to conduct monetary and foreign exchange policy and operations. TA activities in central bank governance (i.e., accounting, internal controls, and organization) and reserves management have each absorbed about 20 percent of the overall TA envelope; and TA activities in financial market infrastructure have absorbed a much smaller fraction (about 5 percent).

Regional Allocation of Technical Assistance in Central Banking



Source: MCM Regional Allocation Plan. FY14 includes all completed and planned TA activities.

The delivery modes of MCM TA are diverse. This has involved assessment missions led by headquarters-based staff to assess the level of conformity with the building blocks for effective monetary policy, and design an action plan for monetary policy modernization. These missions generally involve external experts from cooperating central banks, as well as the MCM advisors in the RTACs whenever the beneficiary countries are covered by an RTAC. Typically, these assessment missions are followed by a short-term experts' mission in those areas that have been identified as in need of capacity building. In some countries where the program of reforms is significant, MCM has placed long-term resident advisors to facilitate the delivery and coordination of TA in the various areas.

SSA has received almost half of MCM TA in central banking. The other geographical areas share the remaining part more or less equally (Figure). The sharp increase in the demand for MCM TA in FY14 is distributed among all regions, but with a larger share in SAA. This evolution reflects an increase in the number of TA requests to assist central banks in introducing elements of forward-looking monetary policy. This increase in SSA also reflects the placement of several MCM resident experts covering regional groupings and a few individual countries.

Appendix VIII. Data Requirements for Monetary Policy

It is important to consider the institutional contexts for developing the sustained provision of timely, high-frequency (monthly or weekly) data series needed to support monetary policy analysis. Most countries have reasonably long-standing monthly series on inflation (generally the CPI) and the exchange rate, but not all have the requisite GDP volume statistics with the coverage, periodicity, and timeliness desired for monetary policy analysis. High-frequency indicators, especially on economic activities, are also lacking in many countries.

Statistical information on policy variables or policy instruments (such as interest rates and financial sector positions and flows) may be immediately available to the central banks executing the policy framework. This is provided that central banks have timely, smoothly functioning systems of recording, archiving, and analyzing these variables. Where needed, the Fund's STA provides TA services to central banks in maintaining these data flows from accounting data and banking system surveys.

The credibility and effectiveness of monetary policy are enhanced by sourcing the data on other indicators relevant for monetary policy analysis from another independent and impartial source: the national statistical office (NSO). In LICs, however, the budgetary and staff resources of the NSO often are insufficient to produce high quality principal macroeconomic indicators—price indexes and national accounts—much less the indicator series supporting the macro framework. Thus, in the long run, scoping and addressing the problem of building the institutional capacities of NSOs to handle the production of high-frequency data is essential for a successful monetary policy formulation.

While NSO capacity is being built, the short-term policy need for high-frequency indicators may have to be met using central bank resources. This can be undertaken either through central banks collecting and processing the needed data themselves, or contracting the NSO through an intra-governmental agreement. Any information the NSO collects that is infrequently published or not published at all can also be made available to the central bank on a timely basis via the interagency agreement, within the legal constraints covering national statistics. Early experience with the central banks of Uganda and Rwanda through AFRITAC-East has been encouraging in this regard. The AFRITAC-East Macroeconomic Statistics and Macro-Fiscal Advisors have worked together to improve central bank access to high-frequency statistics and assisted their analytical staffs with aggregating them into usable indicators.

Current versus capital expenditure is a key distinction to keep in mind in marshalling the resources to build NSO institutional capacity for the principal macroeconomic and high-frequency indicators needed for monetary policymaking. Capacity building needs to be two-pronged: securing national and donor resources for building human and nonhuman statistical capital, and securing the commitment of the home government to provide sufficient budget for current expenditure to retain staff and maintain facilities, as well as for human capital maintenance through training, TA, and on the job experience. Fund TA focuses strongly on building human capital. While the Fund provides technical advice on the conduct of price surveys, it is not as active in providing TA on establishment and household surveys that underlie significant components of the national accounts and thus collaboration with other donors is key to enable countries to establish a robust statistical organization. Finally, the Fund needs to advocate for adequate budgetary support from the home government for at least the current expense of maintaining a robust statistical system to sustain hard fought gains in statistical capacity.