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## EVOLVING MONETARY POLICY FRAMEWORKS IN LOW-INCOME AND OTHER DEVELOPING COUNTRIES—BACKGROUND PAPER: COUNTRY EXPERIENCES

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Evolving Monetary Policy Frameworks in Low-Income and Other Developing Countries

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October 23, 2015

## EVOLVING MONETARY POLICY FRAMEWORKS IN LOW-INCOME AND OTHER DEVELOPING COUNTRIES— BACKGROUND PAPER: COUNTRY EXPERIENCES

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Prepared by a staff team lead by Andrew Berg (RES), Catherine Pattillo (SPR), and Ghiath Shabsigh (MCM), with contributions from the following country teams: Albania, Algeria, Armenia, Ghana, India, Iran, Kenya, Kazakhstan, Nigeria, Peru, Rwanda, Uganda, Uruguay, and Yemen. Overall guidance was provided by Dong He (MCM), Seán Nolan (SPR), and Jonathan D. Ostry (RES).

This background paper focuses on the experiences of evolving monetary policy frameworks in nine individual countries and three thematic groupings of countries. The country case studies are complemented by analyses of common issues faced by countries in currency unions in the CFA franc zone, selected resource rich countries, and advanced economies and emerging markets during their modernization process of monetary policy regimes. Finally, the background paper also contains a discussion on the benefits of effective communication in conducting monetary policy.

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## Acronyms and Abbreviations

AM	Advanced Markets
BCEAU	Central Bank of West African States
BCU	Central Bank of Uruguay
BEAC	Bank of Central African States
BoA	Bank of Albania
BoG	Bank of Ghana
BOI	Bank of Israel
BOU	Bank of Uganda
CBA	Central Bank of Armenia
CBK	Central Bank of Kenya
CBN	Central Bank of Nigeria
CBR	Central Bank Rate
CEMAC	Economic and Monetary Community of Central Africa
CFA franc zone	Communauté Financière d’Afrique
CRR	Cash Reserve Ratio
ECB	European Central Bank
ECF	Extended Credit Facility
EFF	Extended Fund Facility
EM	Emerging Markets
FPAS	Forecasting and Policy Analysis System
FSAP	Financial Sector Assessment Program
FX	Foreign Exchange
GIR	Gross International Reserves
LLMICs	Low- and Lower-middle Income Countries
MCM, RES, SPR	IMF’s Monetary and Capital Markets; Research; Strategy, Policy, and Review Departments respectively
MPC	Monetary Policy Committee
MPR	Monetary Policy Rate
NBR	National Bank of Rwanda
NDA	Net Domestic Assets
NEER	Nominal Effective Exchange Rate
NFA	Net Foreign Assets
OMO	Open Market Operations
OTC	Over-the-counter
RBI	Reserve Bank of India
REER	Real Effective Exchange Rate
SLR	Statutory Liquidity Ratio
SME	Small and Medium Enterprises
SSA	Sub-Saharan Africa
TA	Technical Assistance
VAR	Vector Autoregression
WAEMU	West Africa Economic and Monetary Union

## COUNTRY CASE STUDIES

### A. Albania<sup>1</sup>

#### The Evolution of Albania's Monetary Policy Framework

1. **From the very beginning of Albania's transition to a market economy in the early 1990s, the main features of the country's monetary regime have been rather stable.** The Bank of Albania (BoA) has always targeted price stability, coupled with a flexible exchange rate.<sup>2</sup> However, the monetary policy regimes and instruments used to achieve BoA's targets have evolved over the last two decades.
2. **The BoA initially pursued a money targeting approach, given underdeveloped financial markets and limited technical expertise.** This approach was also compatible with the financial programming framework used by successive IMF programs that greatly influenced Albania's macroeconomic policies throughout the past quarter century. From 1992–2000, monetary policy relied on a set of direct monetary policy instruments, including a ceiling on commercial credit expansion and a floor for interest rates on domestic currency deposits. However, the increasing sophistication of the Albanian economy and its financial markets required continuous upgrades in the policy framework and instruments.
3. **In 2000, the BoA switched to an indirect set of policy instruments that was both more effective and less distortionary.** The new framework relied on a policy rate (the one-week repo rate) that was decided by the BoA's Supervisory Council.<sup>3</sup> It was complemented by interest rates set on overnight deposit and lending facilities, which established a corridor to contain fluctuations in short-term interbank rates around the main policy rate. By moving the policy rate, the BoA would signal in which the direction it wanted to steer the money supply.
4. **The money targeting regime ran into increasing difficulties.** The BoA's control over the money supply decreased as foreign banks expanded their presence and euroization became pervasive. Monetary aggregates gradually lost their predictive power, with the relationship between money and prices becoming unstable. The regime was cumbersome to communicate to the public, as the BoA frequently missed its money growth targets while achieving its price stability objective.

<sup>1</sup> Prepared by Ezequiel Cabezon and Slavi Slavov, with helpful inputs from staff at the Bank of Albania.

<sup>2</sup> Given Albania's openness, the exchange rate has always been a major driver of inflation and a critical information variable for the BoA. While the BoA does not target a level of the exchange rate, it pays attention to exchange rate developments to assess current and expected inflation.

<sup>3</sup> The Supervisory Council is charged with the supreme direction and supervision of the policies, administration and operations of the Bank of Albania. It consists of nine members—three members are from within the Bank of Albania, and the remaining six members are external.

The interest rate and expectations channels gradually assumed a more important role in the monetary transmission mechanism.<sup>4</sup>

**5. In response, since 2003-2004 the BoA has been gradually transitioning to a full-fledged inflation targeting framework.** In particular, in addition to monetary analysis, the BoA started using macroeconomic forecasts to assess the balance of inflationary pressures and to guide its policy decisions. For a period of time (2009–2014), the monetary regime closely resembled the dual approach pursued by the European Central Bank (ECB), with policy decisions guided by both economic and monetary analysis. In 2015, the BoA dropped any reference to monetary aggregates and publicly announced that it would follow an inflation targeting approach, to better align its communication strategy with its policy-making process.

**6. Over the past decade, the BoA has progressed through three different specifications of its inflation objective.** In 2005 the central bank introduced a target band for inflation of 2–4 percent. During 2006-2014, the band was complemented by a 3 percent center point. Finally, in January 2015, the band was removed to leave only the center point. This change was to better anchor the public's expectations and to avoid confusion given the low inflation observed since late 2013.

**7. In terms of process, the transition to inflation targeting was split into a design and an implementation phase, with the former taking the better part of two years (2003–2004).** The BoA invested significant time and effort in upgrading its technical expertise, expanding the skills of its staff, and developing flexible and robust models for macroeconomic forecasting and monetary policy analysis. Several conferences and internal workshops were dedicated to identifying the preconditions for an inflation targeting (IT) framework and mapping out a strategy for achieving them. The BoA benefitted throughout this process from technical assistance provided by the IMF and Sveriges Riksbank.

**8. Significant preparatory work was needed to introduce the policy rate.** The BoA needed analytical tools to forecast and assess the impact of indirect instruments on financial markets and the real sector. It also had to design and test a framework of market instruments and communication procedures.

**9. The BoA further benefitted from a legal framework that guaranteed a high degree of operational independence.** The central bank's positive track record with regard to price stability has helped to bolster public trust and anchor inflationary expectations. In spite of various technical problems, both the inflation rate and inflationary expectations have been well-anchored to the BoA's inflation target, and interest rates on overnight and one-week repos have been closely aligned with the BoA's policy rate.

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<sup>4</sup> Bank of Albania (2014).

**10. The BoA's transition to an inflation targeting framework will continue to face**

**headwinds.** Imported disinflation has been testing the limits of BoA's policy framework. High non-performing loans (NPLs) and structural problems in NPL resolution make banks risk-averse, thus thwarting the monetary transmission mechanism.

**11. A large stock of unhedged foreign currency borrowing poses a particular challenge to monetary policy.**

High euroization in the financial system reduces the BoA's control over the (effective) money supply and the impact of its policy decisions on the real economy. Another constraint posed by euroization is that substantial interest rate adjustments could affect the lek-euro exchange rate and that could in turn generate financial instability, given large unhedged exposures. In a bid to ease high euroization over the short term, the BoA has implemented higher liquidity and capital requirements for foreign currency lending, discouraged cross-border lending, and imposed outright bans on certain types of foreign currency lending, such as mortgages in foreign currency to unhedged households. In the long term, a stable domestic currency and a well-developed financial system offer the best incentives for gradual de-euroization.

**12. The increase in public debt since 2010 has not constrained the BoA's ability to meet its policy objectives.**

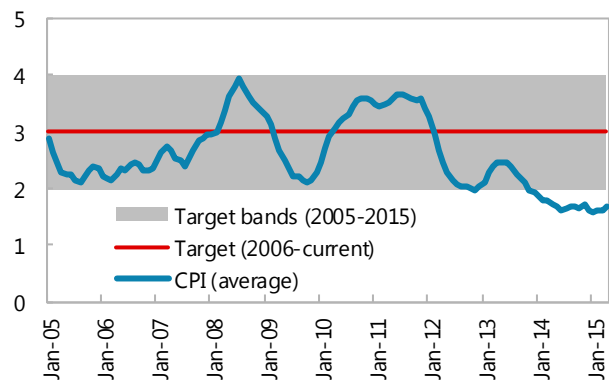
The government cannot run an overdraft with the central bank, and under the current IMF program, central bank lending to the government is capped at zero. (Previously, the central bank could, based on its discretion and within legal limits, extend direct credit to the government.) However, given the nexus between sovereign and banking system balance sheets, the high level of public debt is a vulnerability that concerns the BoA. Under extreme scenarios, fiscal dominance may compromise the operational independence of the central bank, as commercial banks might become reluctant to finance the government. Given the short maturity of public debt, rollover risks may materialize because of unanticipated liquidity problems in the banking system. As a result, the BoA may be forced to intervene beyond its normal role of liquidity provider to preserve financial stability.



**Figure 1. Albania—Selected Economic Indicators**

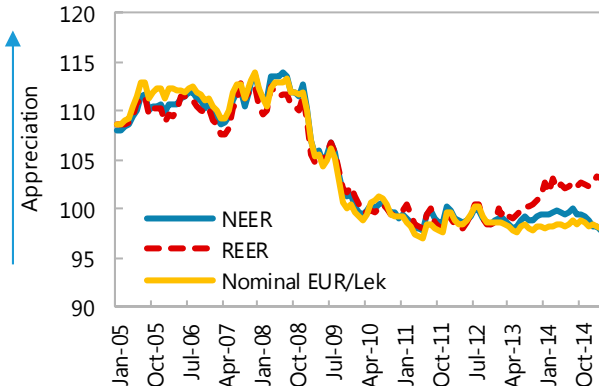
**Inflation**

(in percent)



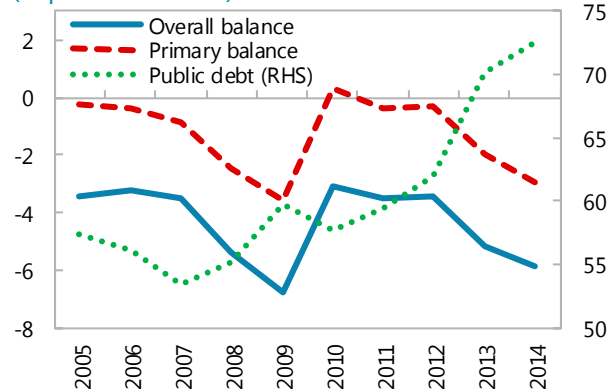
**Exchange Rate**

(index 2010=100)



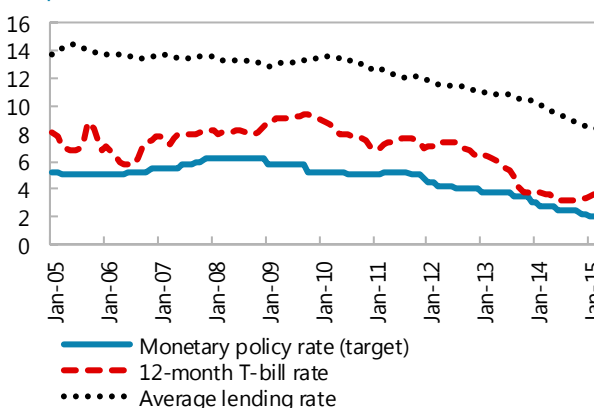
**Key Fiscal Indicators**

(in percent of GDP)



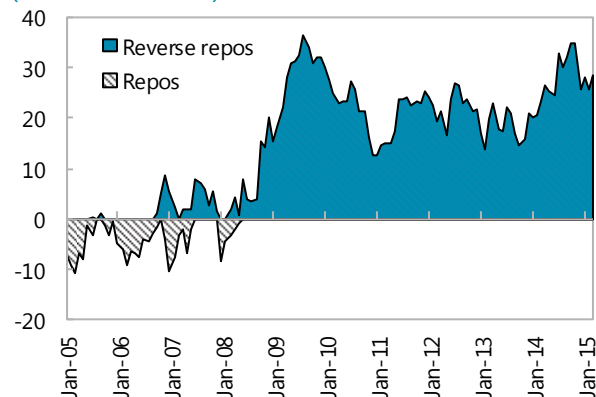
**Interest Rates**

(in percent)



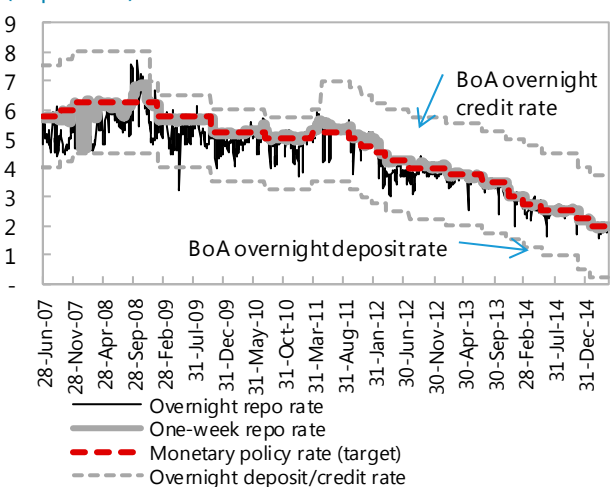
**Repurchase Agreements**

(in billions of LEK)



**Monetary Policy Rates**

(in percent)



Sources: Albanian Institute of Statistics; Bank of Albania; Albanian authorities; and IMF staff calculations.

## B. Armenia<sup>5</sup>

### Experience with Monetary Targeting

**13. Armenia reintroduced a national currency in 1993, and a monetary targeting framework was put in place the following year in the context of an IMF-supported program.**

The monetary targeting framework was successful in reducing inflation, which already in 1996 had fallen to single digits. After some resurgence in 1997, inflation returned to single digits in 1998 and remained firmly in that territory in the following years. Key institutional reforms helped anchor the monetary targeting framework, such as the adoption of a modern central bank law in 1996—which made price stability the main goal of the Central Bank of Armenia (CBA)—and the explicit prohibition of central bank credit to the government.

**14. The success of monetary targeting in delivering low inflation masked, however, significant problems in the operation of the framework.** For instance, while inflation was always in single digits between 1998 and 2005, the money target was met in only one year, with significant deviations observed in the other seven years. In other words, money demand was becoming more difficult to predict, and monetary aggregates were becoming a less reliable predictor of inflation. They were also very difficult to forecast, in part due to significant changes in the degree of financial dollarization of Armenia’s economy. As a result, the CBA had to frequently revise its monetary projections—in several cases by large amounts—to adjust to changes in money demand and maintain low, stable inflation. However, these revisions were eroding the CBA’s credibility and generated concerns about the economy possibly losing its nominal anchor were such credibility to erode further.

### Adopting Inflation Targeting

**15. The CBA adopted an inflation targeting framework in 2006, under the view that it would serve as a better institutional basis for the de facto inflation targeting policies that were already being implemented.**<sup>6</sup> The perception was that success depended on moving to a forward-looking policy framework that would effectively anchor inflation expectations.

**16. The adoption of inflation targeting did not imply significant institutional changes, given that the CBA was already operationally independent and price stability was already legally established as the CBA’s main policy goal.** These institutional features clearly facilitated the transition towards inflation targeting. Naturally, however, the intermediate target of monetary policy was changed from a monetary aggregate to an inflation target forecast, while the operational

<sup>5</sup> Prepared by Pedro Rodriguez.

<sup>6</sup> By adjusting money supply to accommodate changes in money demand and foster low and stable inflation, the CBA was becoming a de facto inflation targeter rather than a money targeter.

target became a short-term interest rate (the central bank's policy rate).<sup>7</sup> Major changes were necessary in other areas, in particular:

- Analytical capacity. The CBA needed to significantly strengthen its modeling capacity—the general core model was first developed in 2007—and its understanding of the transmission mechanism of monetary policy.
- Communications strategy. The CBA needed to strengthen its communications capacity, both with the markets and with the public in general. This was done in part by increasing the frequency of some forms of reporting—e.g., inflation reports were released quarterly rather than semi-annually, and the monetary program was shifted from an annual to a quarterly exercise. Furthermore, the creation of some new forms of communication played a major role, including the publication of monthly Board minutes—which include a situational assessment, a discussion of the outlook, and the rationale for interest rate decisions—as well as press releases for policy rates decisions.

**17. The transition to inflation targeting was done in a gradual manner, and the CBA maintained the elements of the previous framework (e.g., net domestic asset (NDA) ceilings) to smooth the transition to the new regime.** That said, the new framework was put in operation quite promptly, with the CBA initiating a tightening cycle of the policy rate in 2006 as inflation moved above target.

#### **Performance of the Inflation Targeting Framework**

**18. The inflation targeting framework has been able to keep inflation in single digits since its implementation.** Although inflation has fallen outside the CBA's target range of  $4 \pm 1.5$  percent in some years, these deviations have been temporary. The CBA has responded in line with the inflation targeting framework when deviations have emerged, which may have helped maintain its credibility in spite of misses. The inflation targeting framework has also served as an analytical framework to respond to major macroeconomic shocks that have affected the economy in recent years.

**19. This success in delivering low inflation does not mean, however, that the framework has not faced challenges.** On the contrary, the presence of supply shocks in 2007 and 2010 due to changes in food prices and utility tariffs required refinements to the projections model to quantify the direct and indirect impact of these changes. The impact of the global financial crisis—which affected Armenia mainly via trade and remittances channels—also tested the framework. The CBA reduced its policy rate during 2009, but by early 2011 had restored it to its pre-crisis value. There have also been operational challenges, including the need to strengthen the link between the policy rate and market rates. In this regard, the CBA has gradually reduced the interest rate corridor around the policy rate and improved its liquidity management.

<sup>7</sup> The inflation forecast is produced for the following 36 months—although more emphasis is put on the short term end of the projections—and communicated via the inflation report.

**20. Another major challenge that the framework has faced has been the management of monetary and exchange rate policies in the context of high financial dollarization.** In particular, under the traditional transmission channel of monetary policy, movements in the policy rate lead to changes in market interest rates and, subsequently, to movements in the nominal exchange rate. However, in dollarized economies like Armenia's, this channel is accompanied with rapid pass-through effects to domestic prices and by possible balance sheet effects due to currency mismatches. This complicates the design of monetary policy, as balance sheet considerations—e.g., the balance sheet effect of exchange rate movements on unhedged borrowers—give rise to concerns about financial stability. These and other challenges associated with the design and implementation of monetary policy in dollarized economies have led the CBA to also put in place a comprehensive de-dollarization policy. However, dollarization has remained a persistent feature of the financial sector as evident in other comparable countries.

### Next Steps

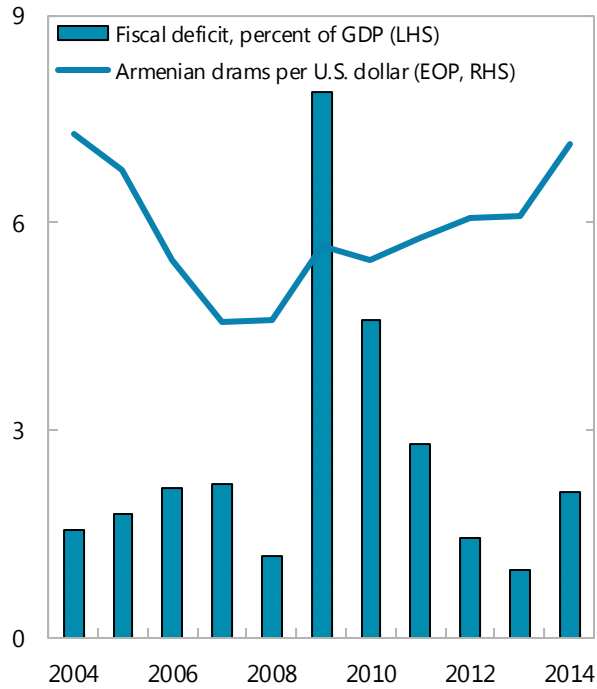
**21. After almost a decade of experience with inflation targeting, the CBA currently has a much better understanding of the transmission mechanism of monetary policy, as well as an operational architecture to produce and analyze macroeconomic and inflation forecasts.**

Nonetheless, areas for improvement remain large and range from further strengthening communications—both with market participants and the public—to strengthening the forecast and analytical models—including by adding financial stability considerations and their relationship with exchange rate fluctuations.

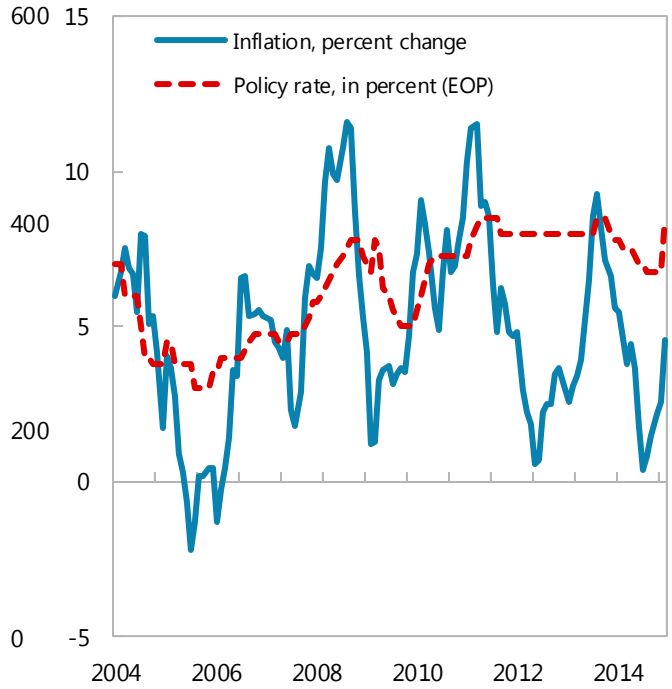
**22. Recent Fund programs and Fund technical assistance (TA) have aimed at strengthening the inflation targeting framework.** The aforementioned gradual reduction of the interest rate corridor was part of the policy agenda included under a three-year (2010–13) Extended Fund Facility (EFF) and Extended Credit Facility (ECF) program. More recent TA, as well as the current EFF program (approved in March 2014), is aimed at strengthening CBA communications. Finally, the TA agenda for the coming years will help Armenia incorporate financial stability considerations into its inflation targeting framework, particularly regarding the potential balance sheet effects of exchange rate fluctuations. The importance of the latter issue has increased significantly in Armenia in recent years, as the financial sector has become a larger share of the economy, and as the degree of financial dollarization spiked in the context of the global financial crisis.

**Figure 2. Armenia—Fiscal and Monetary Conditions, 2004–2014**

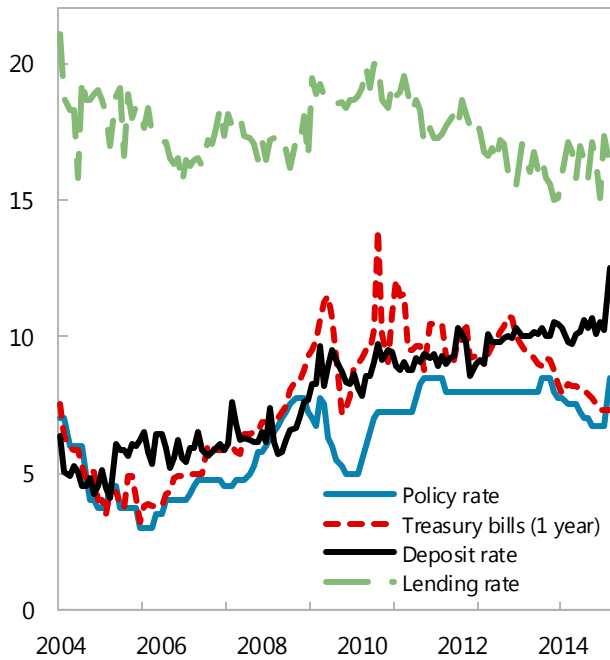
**Fiscal Deficit and Exchange Rate**



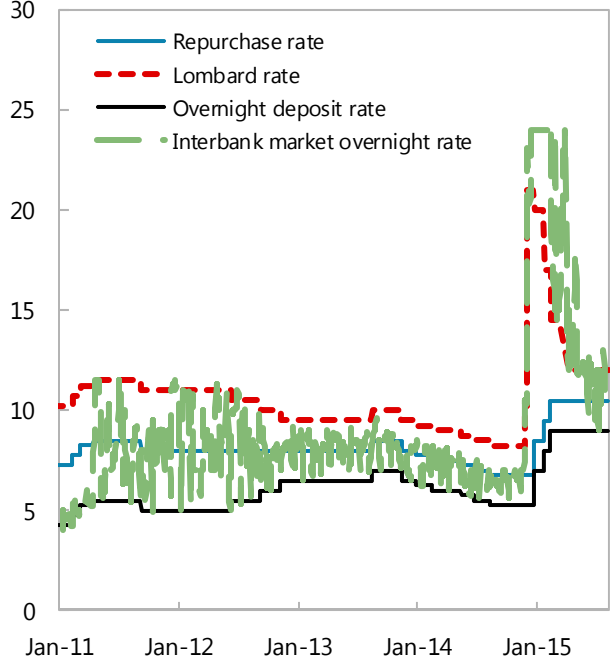
**Policy Rate and Inflation**



**Policy, T-Bill, Lending, and Deposit Rates (in percent)**



**Overnight Interest Rate Corridor (in percent)**



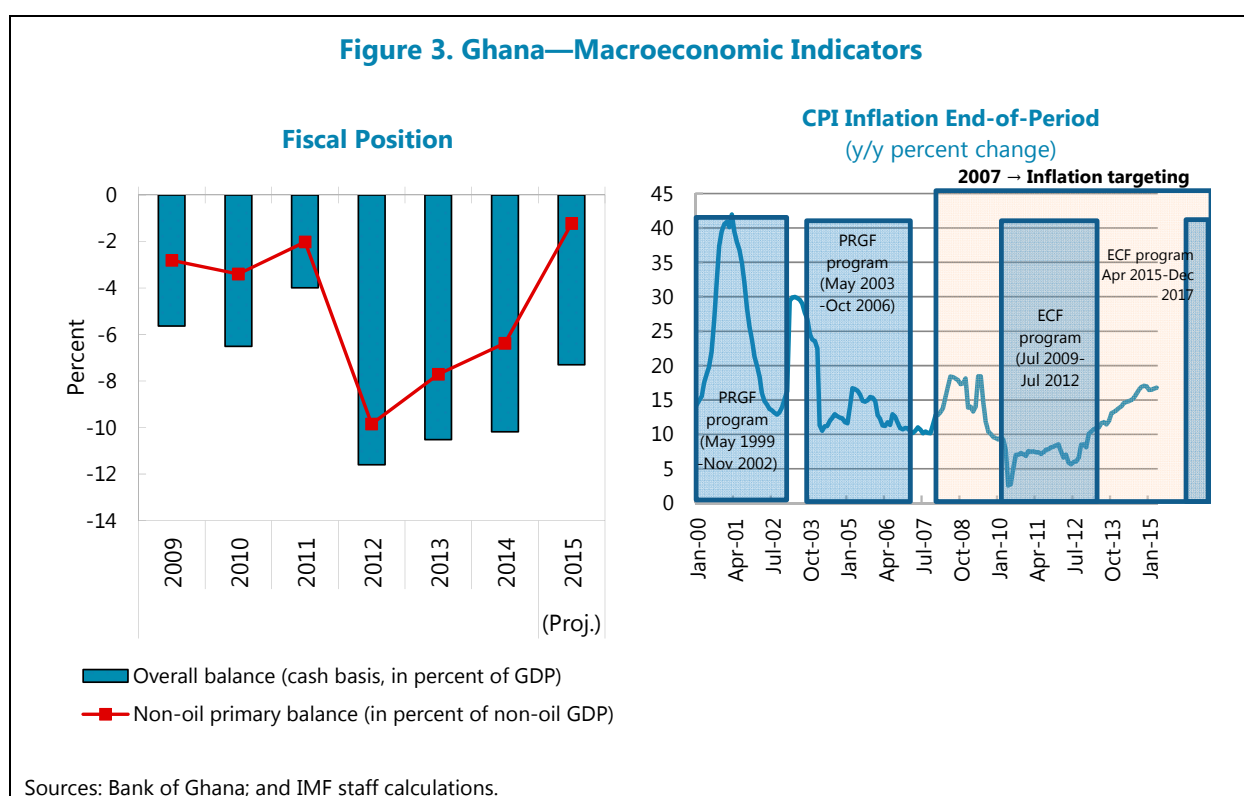
Sources: National authorities; International Financial Statistics; and IMF staff calculations.

Note: EOP denotes end of period.

## C. Ghana<sup>8</sup>

**23. Ghana’s experience with modernizing its monetary policy framework—in this case framed by transition from traditional money targeting to IT—offers very useful insight into the importance of adopting sound principles of monetary policy relevant for modern monetary policy frameworks including IT.** By announcing adoption of the IT regime in 2007, Ghana became the second country in sub-Saharan Africa (SSA) to transition to IT after South Africa. The Bank of Ghana (BoG) was also one of the earliest central banks in low- and lower-middle income countries’ (LLMICs) to transition to IT.

**24. The experience with achieving inflation stability after adopting IT in Ghana is mixed.** The inflation performance in Ghana was to a large extent influenced by traditionally strong fiscal pressures that the adoption of IT itself did not help to fully resolve. These pressures were manifested by direct monetization of deficits and pressures on the BoG to maintain more accommodative monetary policy stance than was desirable. Even if performance was mixed, the implementation of IT was an improvement from the early 2000s when inflation recorded very large swings.



**25. In the early period after adopting IT, inflation rose driven by a global surge in commodity prices and fiscal pressures associated with hosting the African Cup of Nations soccer tournament in 2008, the Fiftieth Anniversary of Independence celebration, and fiscal overruns in the run-up to the 2008 presidential elections.** The subsequent monetary policy

<sup>8</sup> Prepared by Javier Arze del Granado.

tightening, collapse of commodity prices in reaction to the global financial crisis, and policies undertaken during the IMF supported program (Extended Credit Facility) helped bring inflation down from about 20 percent year-on-year (y/y) in 2009 to about 8 percent y/y in 2011 (close to the inflation target of 9 percent for 2011). Inflation started to rise again after the 2012 elections, which were associated with monetary-financed fiscal expansion (fiscal deficit grew from 4 percent of GDP in 2011 to 11.5 percent in 2012). Inflation as of August 2015 was 17 percent, well above the BoG's 8 percent medium-term inflation target.

**26. Ghana operates a flexible exchange regime but the foreign exchange market needs further development.** While the exchange rate is allowed to fluctuate, the BoG's official reference rate has often reflected a less depreciated rate than the market-determined rates. This is due to the BoG's previous practice to exclude transactions at rates considered to be outliers from the average. In early 2015, the BoG unified the exchange rate by adopting a new methodology in which the rate is computed using a weighted average of all large transactions in the interbank market. The foreign exchange interbank market is still shallow, among other factors, because of the compulsory surrender requirement of foreign currency receipts from the mining and cocoa sectors (the main export sectors) to BoG. This mechanism is aimed at ensuring that the prepayment for cocoa that is received as one lump sum, normally around late September or early October, does not add undue volatility to the foreign exchange market. The BoG manages the release of foreign currency to the banking system on a demand basis, usually at the BoG's official benchmark rate. The BoG is also responsible (though informally) for the provision of foreign currency to oil importers—using mainly the surrendered foreign exchange from the cocoa and mining sectors.

**27. A number of lessons can be learned from Ghana experience.** There are several factors which make it difficult for monetary policy to be efficient in achieving its inflation objective and which are being addressed as a part of the recent BoG efforts to strengthen its monetary policy framework.

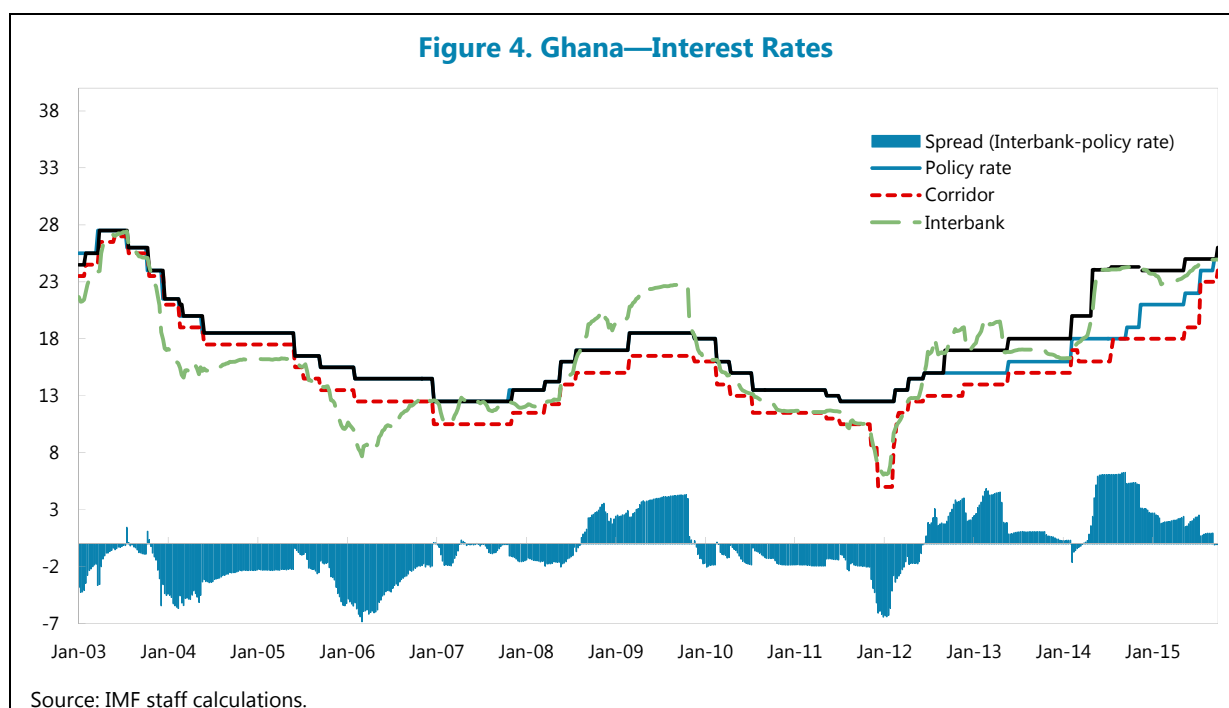
**28. The institutional foundations for adopting IT were laid out in the Bank of Ghana Act adopted in 2002.** The BoG Act (2002) established stability in the general level of prices as the BoG's primary objective; granted the BoG operational independence; introduced limit on government borrowing from the BoG; and established the Monetary Policy Committee (MPC) at the BoG to formulate monetary policy.

**29. The experience since the BoG Act (2002) suggests that further strengthening of the BoG independence is needed to protect monetary policy from fiscal pressures.** The BoG Act (2002) is currently being revised to address these outstanding issues (e.g., prohibiting the BoG from lending to the government,<sup>9</sup> revising terms of office and the MPC member appointment process to promote their independence). The revised BOG Act is expected to be submitted to the parliament by the end of 2015.

<sup>9</sup> In the meantime the BoG and the Ministry of Finance signed a new Loan and Fiscal Agency Memorandum of Understanding establishing a five percent of previous year revenue limit on BoG financing of the central government in 2015 and a zero financing of government from the BoG from 2016 onwards.

**30. To operationalize the price stability objective, the BoG, in coordination with the government, began to announce inflation targets (with a band) in 2007.** The targets are announced in MPC press conferences and economic reports produced after each MPC meeting and in the government’s budget statement, and were until recently set for headline CPI inflation at end of the next calendar year. The targets were understood as a level of inflation to be achieved at the end of the year, which led to frequent revisions when the targets became at odds with the inflation developments during the year. Revisions of targets and deviations from the end-year targets compromised the target’s role as a nominal anchor and rendered the targets more as inflation forecasts instead. To reinforce the role of the inflation target as a means to anchor inflation expectations and align the use of the targets with best practices, the BoG introduced a medium-term inflation target in November 2014, ending the practice of setting annual targets. While the medium-term target is currently set at  $8\pm 2$  percent, a more ambitious target will likely be needed at a later stage as the BOG builds its credibility by among other things meeting this initial target.

**31. Before and after the announcement of IT, the BoG has also been working on building an efficient interest-rate-based operational framework to increase its transparency and strengthen transmission of monetary policy.** In 2006, the BoG introduced an interest rate corridor linked to the central bank rate (CBR). The corridor was formed by the deposit overnight reverse repo rate (equal to 200 basis points (bp) below the CBR) and the lending overnight repo rate (equal to the CBR). The BoG was conducting open market operations (OMO) to keep the interbank rate within the corridor. The signaling role of the policy rate and the policy transmission was undermined, and monetary policy communication was made difficult by lengthy periods when interbank rates deviated significantly from the corridor and by a widening of the corridor in 2012 to  $\pm 300$  bp.





**32. To strengthen the role of the policy rate, the BoG has introduced measures to link the interbank rates with the policy rate more firmly.** The BoG introduced in February 2015 full allotment auctions of two-week BoG bills with the interest rate set equal to the policy rate as a main liquidity withdrawing instrument. The BoG introduced in August 2015 full-allotment seven-day repo operations as a main liquidity providing instrument, with the interest rate set again at the policy rate. At the same time, the BoG narrowed the interest rate corridor formed by overnight deposit and lending facility rates to  $\text{CBR} \pm 100$  bp.

**33. The BoG has also continuously worked on enhancing its capacity in forward-looking policy analysis and forecasting.** At the time of adopting IT, the BoG developed (with technical assistance from the IMF) its first generation of a core quarterly projection model and started to produce medium-term inflation forecasts. In 2003, the BoG also began to conduct business and consumer confidence surveys and surveys of inflation expectations to inform its policy decisions.

**34. Currently the BoG is working on further enhancing and institutionally entrenching its forecasting and policy formulation system (FPAS).** The BoG is revising its monetary policy formulation process and further training its staff in policy analysis. To better entrench the FPAS and ensure its sustainability, the BoG is also considering changes to its organizational structure (e.g., establishing the Economics Department to lead the supporting function for policy decision making; separating administrative functions from core monetary policy functions).

**35. The BoG is also working on improving the functioning of the foreign exchange market to better reflect market forces.** BoG's reference rate will not play any role in determining the rate of exchange between private parties once surrender requirements are lifted, and foreign exchange interventions in the market will be coordinated with the inflation targeting objective and limited only to managing disorderly market conditions.

**36. Ghana's experience with the modernization of its monetary policy framework offers valuable insights** into the importance of insulating monetary policy from fiscal pressures, operationalizing the inflation objective by well-defined and communicated medium-term inflation targets, adopting an efficient, operational framework, and developing a sustainable capacity to formulate forward-looking monetary policy. Although these important elements were not firmly in place at the time of adoption of IT (or early after), the BoG has been working on addressing the weaknesses to enhance efficiency of the IT framework and align it more closely with best practices.

## D. India<sup>10</sup>

### The Evolution of India's Monetary Policy Framework

**37. India's monetary policy framework has evolved considerably over the past two decades.** In particular, the nature of monetary management has changed in response to the opening up of the economy in the early 1990s and the accompanying financial sector liberalization. Drawing broader responsibility from its mandate, India's monetary policy framework has evolved to bring together the multiple objectives of price stability, financial stability, and growth.<sup>11</sup>

#### *Multiple Indicator Approach*

**38. The structural reforms and financial liberalization of the 1990s led to a shift in the financing pattern for the government and commercial sectors, with interest rates and the exchange rate becoming increasingly market-determined.** The Reserve Bank of India (RBI) was able to move away from direct instruments to indirect market-based instruments to the eventual adoption of a "multiple indicator approach" in 1998. This approach placed greater emphasis on rate channels for monetary policy formulation relative to quantity instruments. Under this approach, a number of quantity variables such as money, credit, output, trade, capital flows, and fiscal position, as well as rate variables such as rates of return in different markets, the inflation rate, and the exchange rate were analyzed as inputs for monetary policy making.

**39. The multiple indicator approach seemed to work fairly well from 1998–99 to 2008–09, as reflected in an average real gross domestic product growth rate of over 7 percent and associated average consumer price inflation of about 5½ percent.** In recent years, however, with persistently-high inflation and weakening growth, there was public criticism of the efficacy and the credibility of this approach. In particular, the use of a large panel of indicators did not provide a clearly defined nominal anchor for monetary policy, leaving the broader audience and market participants unclear about the policy stance.

#### *Flexible Inflation Targeting*

**40. Since the mid-2000s, several high-level policy reports have argued for India to move to inflation targeting.** A path for a strengthened monetary policy framework was laid out in the Patel Committee Report to the RBI,<sup>12</sup> published in early 2014. Since then, the RBI has been undertaking de-facto flexible inflation targeting as it shifted policy formulation to focus on containing inflation (with headline CPI inflation as a de-facto nominal anchor) and strengthened policy communication. Flexible inflation targeting was officially adopted in February 2015. In so

<sup>10</sup> Prepared by Volodymyr Tulin, Mehdi Raissi, and Sonali Das.

<sup>11</sup> For further details see IMF (2014a, 2014b, 2015a, 2015b).

<sup>12</sup> See Reserve Bank of India (2014).

doing, the foundation for increased operational autonomy of the RBI was set out, the target zone for headline CPI inflation was formally specified, and plans for establishing a Monetary Policy Committee and accountability framework were laid out. The key features of the new framework include:

- The objective of monetary policy is primarily to maintain price stability, while keeping in mind the objective of growth. While the inflation target is set by the government of India, the RBI will have operational autonomy over the choice of operating targets and policy instruments. Headline CPI inflation, which captures retail consumer price inflation for the full spectrum of the Indian population, will serve as the nominal anchor.
- The medium-term inflation target shall be  $4\pm 2$  percent. In view of the elevated inflation and inflation expectations, and the need to balance the output costs of disinflation, a two-year glide path to bring down inflation was also laid out. The RBI had achieved the first year glide path objective of 8 percent year-on-year (y/y) inflation by January 2015 and aims to bring inflation below six percent by January 2016.
- Communication, transparency, and accountability policies will also be detailed. The RBI will publish regular inflation reports explaining inflation dynamics and forecasts for the period between 6 to 18 months. In the event of a breach of inflation target for three consecutive quarters, the RBI will report to the central government on the reasons behind the failure to meet the inflation target and propose remedial actions.

### Monetary Transmission

#### 41. **The RBI has also put forward a roadmap for enhancing monetary policy transmission.**

This included strengthening the rate channel by developing interest rate benchmarks for economy-wide interest rate setting, through offering term repos and facilitating the development of interest rate derivatives and linking open-market operations (OMOs) solely to liquidity management. In addition, the statutory liquidity ratio (SLR), under which financial institutions are required to invest a certain portion of their liabilities in government securities, which has resulted in a captive market for government securities and dampened transmission of interest rate changes across the term structure, will continue to be lowered concomitant with a reduction in fiscal deficits.

**42. Exchange rate depreciation is a key source of inflation risk in India.** A monetary policy framework with inflation as the nominal anchor is consistent with flexibility in exchange rate management. RBI's strategy has been to build an adequate level of foreign exchange reserves and to pursue swap arrangements, with interventions limited to smoothing exchange rate volatility and preventing disruptions to macroeconomic stability.

**43. India's experience thus far suggests that a well-defined nominal anchor with a clear policy objective, which is well-understood by the general public and easily communicated, has strengthened policy communication.** This was further enhanced through the publication of two-year-ahead inflation forecasts and associated confidence bands. As well, the RBI has increased the

frequency of its public engagement, including through publishing bi-monthly monetary policy statements and holding conferences with analysts and the press. Finally, in the context of a double-digit inflation rate in late 2013, establishing a glide path for inflation reduction appears to have helped communication. In addition, positive steps to help dampen inflation have recently been taken, such as deregulating diesel and gasoline prices and containing the growth of minimum support prices for key agricultural commodities, both of which affect food inflation.

### **Drivers of Indian Inflation: Food Inflation and Fiscal Imbalances<sup>13</sup>**

**44. Food inflation has often been singled out as a key driver of India's high and persistent inflation in the past few years.** Key factors behind the role of food inflation in shaping inflation dynamics have been: (i) the large share of food expenditure in total household expenditure and accordingly in the consumer price index; (ii) the decisive role of food inflation in anchoring inflation expectations; and (iii) wage indexation to consumer prices. Due to its non-trivial impact on aggregate consumer price inflation, food inflation presents a challenge for monetary policy management. Going forward, further structural reforms to increase Indian food production, particularly to accommodate dietary shifts towards more nutritious and high-value foods associated with growing incomes, as well as prudent food grain buffer stock management policies, will be essential to underpin inflation targeting.

**45. India's deficit and public debt reduction progress in recent years have helped reduce inflation risks associated with fiscal policies.** Although India's public debt is sustainable and the states have adhered to the Fiscal Responsibility and Budget Management Act (which kept their deficits and debt in check), there is a need to articulate policies for further consolidation and to establish a credible fiscal responsibility framework for the central government. Fiscal adjustment that provides for higher potential growth and further rationalization of subsidies would also help underpin monetary policy management. Concomitant with a decline in the fiscal deficit, a gradual reduction in the statutory liquidity ratio should also help enhance the monetary transmission mechanism.

### **Key Challenges Ahead**

**46. Going forward, the role of food inflation in shaping aggregate inflation dynamics, continued use of the SLR to finance India's still-large fiscal deficits, and administered price, wage and interest rate setting will continue to pose challenges for monetary management in India.** Institutional design of the RBI's Monetary Policy Committee consistent with credible monetary policy making remains important for the success of this new framework.

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<sup>13</sup> For further details see Anand (2014), Das (2015), and Mohaddes and Raissi (2014).

## E. Kenya<sup>14</sup>

### Overview

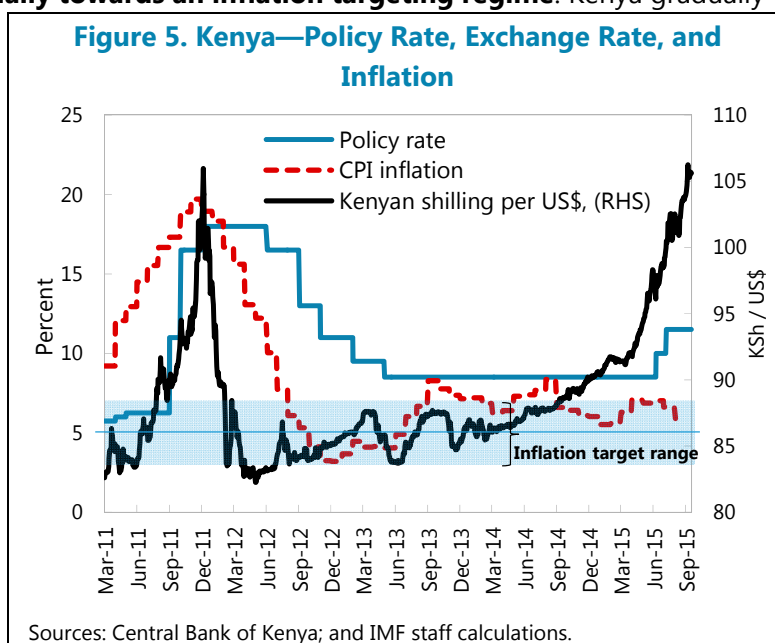
**47. Following frequent monetary target misses and the disconnect of these deviations from the actual inflation performance, the Central Bank of Kenya (CBK) embarked on modernizing its framework to make monetary policy more forward-looking by transitioning its operational target away from reserve money.** A weaker relationship between money and inflation emerged following a significant decrease in average inflation rates to single digits, rapid financial innovation, greater integration with global economy, and deregulation of financial markets that contributed to unstable money demands.

**48. Since the late 1990s, Kenya pursued an inflation objective in the context of a managed float with a variety of instruments and reserve money functioning as the operational target.** The official inflation objective was specified as “below five percent” and is jointly determined by the Ministry of Finance and the CBK. By the mid-2000s, it became apparent that the monetary targeting framework was becoming less effective with frequent misses of the reserve money targets and inflation evolving independently of these deviations. Moreover, the policy rate (CBR) was disconnected from the money market rates and evolution of headline inflation.

**49. Starting in October 2011, the CBK has taken steps to develop a more forward-looking monetary framework moving gradually towards an inflation targeting regime.** Kenya gradually

centered its monetary policy on the CBR which acted as a ceiling for repo (7-day maturity) and a floor for reverse repo (overnight) operations. The money market rates have converged on the CBR. Longer maturity instruments, term auction deposits (TAD) with 14-, 21-, and 28-day maturities, were introduced in July 2012 with the CBR acting as a ceiling in fixed volume auctions. An unintended consequence of the CBR acting as a ceiling on such longer-maturity TADs has been that the effective ceiling on seven-day repos was reduced—at times

significantly—below the CBR. This reduced the effectiveness of repo operations in raising the overnight interbank rate close to the CBR when liquidity conditions are relatively loose. To address



<sup>14</sup> Prepared by Emre Alper.

this issue, the CBK raised the ceiling of the TAD by 250 basis points above the CBR in May 2015. To further enhance effectiveness of liquidity mopping up operations, the CBK introduced three-day repos in June 2015.

**50. The CBK experienced operational challenges including anchoring the overnight interbank rate at the policy rate and keeping the headline inflation close to the midpoint of the target range.** Large and persistent deviations of the overnight interbank rate from the policy rate are undesirable because they could undermine the central bank's communication policy and increase uncertainty on funding costs for the market participants. Similarly, if headline inflation stays above or below the midpoint of the target range persistently, this would risk undermining the credibility of the inflation target.

## Monetary Policy Environment

### *Mandate and accountability*

**51. The current Central Bank Act (2010) specifies the principal objectives of the CBK: (1) formulating and implementing monetary policy to achieve and maintain price stability; and (2) fostering and maintaining a stable financial system.** Without prejudice to these two objectives, the CBK is also directed to support growth and employment. A new draft Central Bank bill is under discussion and is expected to be submitted to parliament in 2015. Compared to the 2010 Act, the draft bill enshrines price stability as the CBK's overriding policy objective followed by the objective of fostering and maintaining a stable financial system.

**52. The Central Bank Act stipulates that the National Treasury, in consultation with the CBK, sets the inflation target at the beginning of every fiscal year.**<sup>15</sup> The inflation target range has been  $5 \pm 2.5$  percent since July 2012. In case of deviations from the target range for three consecutive months, the CBK is required to provide the Treasury with its assessment of the underlying factors and the corrective measures needed to address those deviations.

**Table 1. Kenya—Monetary Policy Framework**

<b>Ultimate target / objective</b>	Headline inflation
<b>Intermediate target (nominal anchor)</b>	Inflation forecasts and expectations
<b>Operational target</b>	Overnight interbank rate (through central bank rate)
<b>Instrument</b>	Open market operations (repurchase agreements, term auction deposits, and foreign exchange interventions), standing facilities

Source: IMF staff calculations.

<sup>15</sup> In practice so far, this has not created tensions between the National Treasury and the CBK.

**53. The CBK has been publishing its Monetary Policy Statement every six months since 1997 to communicate medium-term trends and monetary targets.**<sup>16</sup> Under normal circumstances CBK's Monetary Policy Committee (MPC) meets every other month and makes public its monetary stance through the policy rate. Specifically, through its online press releases, the CBK's MPC communicates recent developments in Kenya and the global economy and its assessment of demand and supply pressures on inflation through a forward-looking framework.

*Macro-financial building block*

**54. Kenya has a flexible exchange rate regime and the CBK intervenes with the aim to mitigate excessive volatility in the foreign exchange markets and build up reserves to stabilize the reserve cover at comfortable levels.** Since 2011 there have been a number of instances in which such interventions were not sterilized, thus reducing money market liquidity significantly and raising the overnight interbank rate above the policy rate—at times significantly—to anchor inflation expectations by mitigating depreciation pressures.

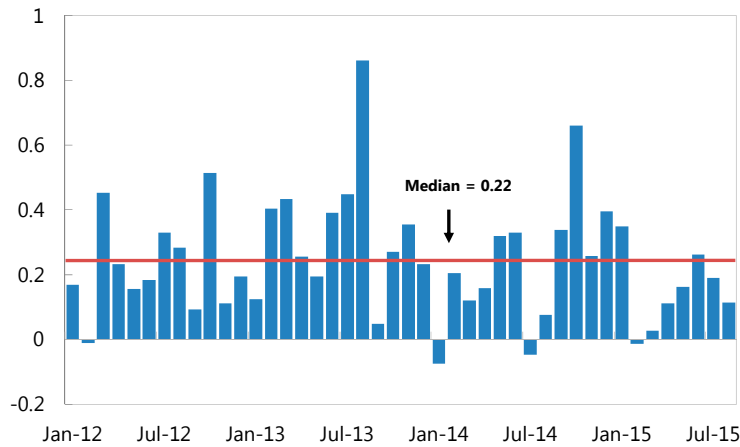
**55. Rapid financial deepening since 2011, including significant mobile money penetration, has been an important contributor to the move away from reserve money as the operational target.** Currently 15 countries around the world have a share of adults with mobile money accounts of 10 percent or more, and Kenya has the highest mobile money penetration at 58 percent (Global Findex Database, 2014). Kenya also leads sub-Saharan Africa (SSA) in account ownership with 75 percent of adults having an account at a financial institution or mobile money provider (up from 42 percent of adults having an account at a financial institution in 2011). Mobile money is used regularly, especially by the previously-unbanked poorer segments of the population for sending payments for agricultural products and utilities and sending and receiving domestic remittances. Increasing financial innovation introduces additional challenges to conventional monetary frameworks which use “reserve money” as the operational target, as it introduces unpredictable changes in both demand for money and the money multiplier.

**56. Kenya's commercial banks do not have persistent and high levels of excess bank liquidity compared to SSA.**<sup>17</sup> This is consistent with the existence of a well-functioning financial market, a competitive banking sector, and relatively developed interbank and government securities markets.

<sup>16</sup> While broad and reserve money targets are specified in the Monetary Policy Statements, since October 2011, these are used only for forecasting purposes as interbank rates gradually replaced reserve money as the operational target.

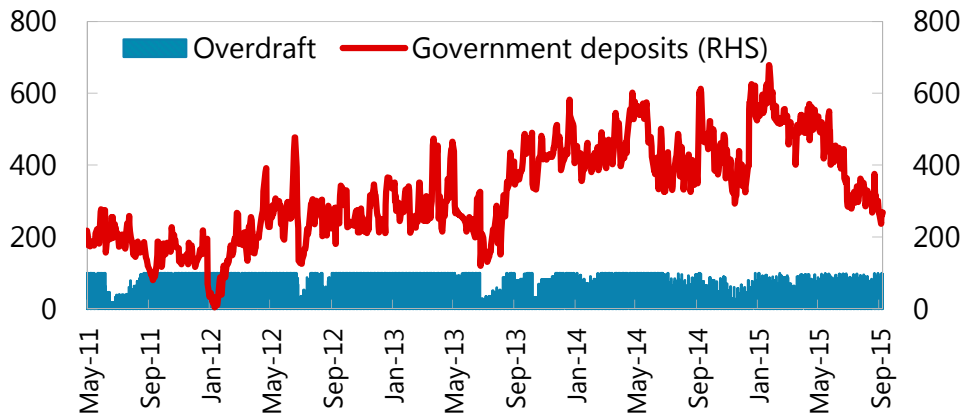
<sup>17</sup> In accordance with the CBK Act, the reserve requirement ratio is currently 5.25 percent of the total of commercial banks' domestic and foreign currency liabilities. The maintenance period is 30 days, and commercial bank reserves are required not to fall below 3 percent of total liabilities on a daily basis. Saxegaard (2006) reported that on average, countries in SSA had excess reserves amounting to 13.2 percent of total deposits with a median value of 8.3 percent.

**Figure 6. Kenya-Commercial Bank Excess Reserves**  
(monthly averages, as percent of total deposits, 2012-2015)



Sources: Central Bank of Kenya and IMF staff calculations

**Figure 7. Kenya—Government Access to Overdraft Facility and Central Government Deposits at the CBK**  
(in percent of legal limit)



Sources: Central Bank of Kenya; and IMF staff calculations.

**57. Compared to regional peers, central bank financing of the government is relatively low.** The Central Bank Act allows the National Treasury to access its overdraft facility, up to a ceiling of five percent of the most recently audited revenues of the central government (about one percent of GDP), which is lower than the limits granted by other regional central banks.<sup>18</sup> The stock of government deposits at the CBK is almost always higher than the central government’s access to

<sup>18</sup> See Jacome et al. (2012) for legal limits on central bank credit to government. For example, government overdraft access as a ratio of previous year’s revenues is 12.5 percent in Tanzania, 18 percent in Uganda, and 15 percent in Zambia.



the overdraft facility. While fiscal dominance is not a concern, weaknesses in cash and debt management operations complicate monetary policy implementation in Kenya.

**58. Kenya has an insignificant share of foreign aid in fiscal revenues and in foreign exchange receipts.** Donor-financed budget grants are insignificant in Kenya (about 0.1 percent of GDP), and this simplifies monetary operations with minimal sterilization needs associated with such flows. Recent commercial sovereign borrowing (US\$600 million in 2012 and US\$2.75 billion in 2014) has somewhat complicated liquidity operations as it increased liquidity when the central government tapped these resources deposited at the CBK to make payments for infrastructure projects.

*Data and analytical capacity*

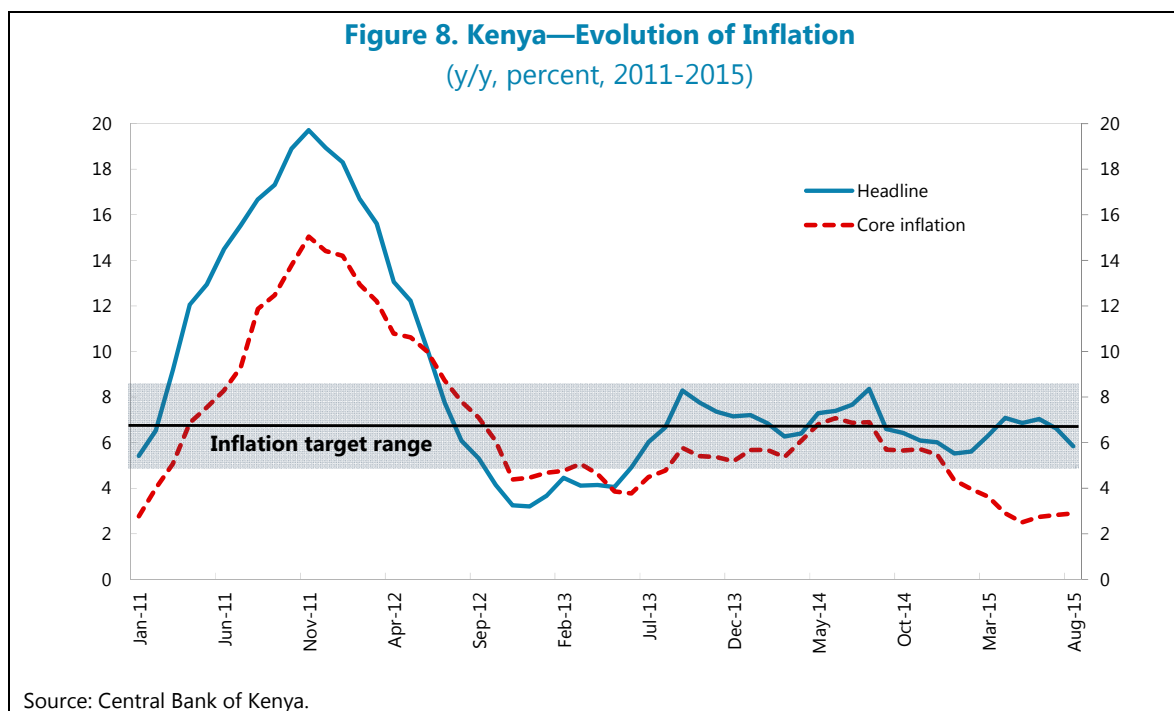
**59. Monthly inflation rates are communicated by the Kenya National Bureau of Statistics with at most a three-day delay on its website.** Information on monetary aggregates, financial market indicators, reserve position, and other macroeconomic statistics are available in a timely manner on the CBK's website. While not published, the CBK conducts end-year inflation expectations surveys every other month to inform its forward-looking inflation assessments. Lack of international investment position data since 2011 has constrained analysis on adequacy of reserves based on risks related to non-resident flows. This issue will be addressed with the release of the Foreign Investment Survey 2012 and 2013 by end-2015 and regular annual publications of these surveys.

**60. Ongoing work with Fund technical assistance helped improve the analytical capacity at the CBK.** In 2013, the CBK created a Monetary Policy Analysis Unit within the CBK's Research Department to provide the MPC with projections and analyses using an in-house forecasting and policy analysis system (FPAS). This framework, along with bi-monthly surveys of end-year inflation forecasts, has been used as an important forward-looking input since September 2013 in MPC meetings to assess the impact of the current monetary policy stance on the main economic variables. In March 2015, an inflation modeling and forecasting unit was established within the Economics Department (formerly Research Department) at CBK with a role of organizing the forecast process and communicating the results to the MPC. Ongoing technical assistance also includes work on a Composite Index of Economic Activity as a way to improve the assessment of current growth and the introduction of a simple fiscal module within the FPAS framework to capture short-term demand pressures from fiscal impulse and linking structural deficits to the real interest rate and the long-term risk premium.

### **Key Challenges Moving Forward and Lessons**

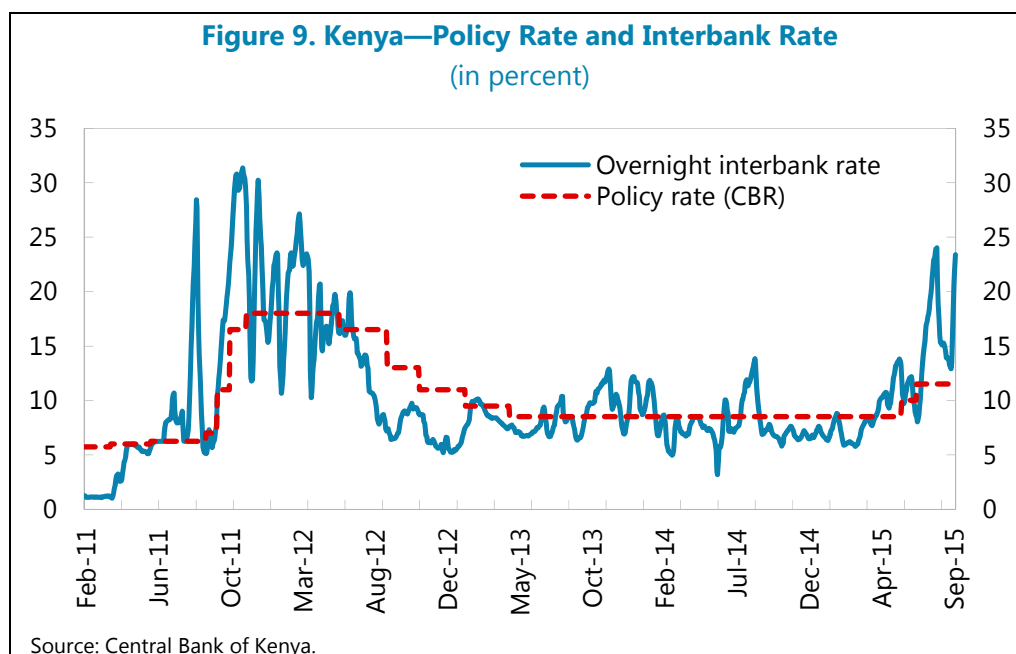
**61. Reflecting frequent adverse food and energy price shocks, headline inflation has typically remained within the upper half of the target range ( $5 \pm 2.5$  percent) reducing the credibility of the midpoint of the inflation target somewhat.** Since returning to within the target range in August 2012, the median inflation rate stood at 6.3 percent. Moreover, in 28 of the last 37 months, headline inflation resided in the upper band of the target range. On the other hand,

growth in median non-food, non-oil (core) prices, about 46 percent of the consumer basket, fared better with median inflation at 5.2 percent suggesting the importance of supply side shocks. Beyond unfavorable weather conditions, another factor that contributed to higher food prices was the impact of the VAT reform which eliminated exemptions in major staple food items in August 2013. Nevertheless, headline inflation has not resided below the midpoint of the target range since June 2013.



**62. Kenya has experienced large and persistent deviations of the overnight interbank rate from the policy rate and this is an impediment to the credibility of the policy rate.** The ability to keep market rates consistently close to the target plays a critical role in ensuring effective policy transmission. If market rates were to deviate consistently from the central bank's target, it creates uncertainty for market participants because these deviations could either represent a setback in the monetary policy implementation process or an undisclosed "stealth" easing/tightening by the monetary authority. Indeed, compared to IT countries, Kenya's overnight interbank rates deviated significantly from the policy rate. The median absolute deviation of the overnight rate from the policy rate is about 185 basis points since October 2011. And the deviation is not getting smaller: in the first nine months of 2015, the median absolute deviation of the spread stood at 210 basis points. One contributing factor is the suspension of standing facilities (discount window) by the CBK when there is foreign exchange pressure to encourage commercial banks that need liquidity to sell foreign exchange assets to alleviate the situation. Unavailability of the discount window would lead to higher uncertainty on funding costs for commercial banks and could lead to higher cost of lending. Aligning the interbank rate more closely with the policy rate requires a more active use of

monetary instruments and improved liquidity forecasting or a shift to fixed-rate, full-allotment operations.



**63. Large and unpredictable fiscal flows and delays in the implementation of the Treasury Single Account (TSA) complicate liquidity forecasting and monetary policy operations.**

Strengthening high-frequency liquidity forecasting may be facilitated by (i) upgrading the coordination between the CBK and the National Treasury; (ii) improving the debt management office at the Treasury; (iii) rationalizing access to the CBK's overdraft facility; and (iv) fully implementing the TSA, expected by the end of 2015.

**64. The government's access to the CBK overdraft facility has stayed close to the legal limit, and this has been the norm rather than an exception** (with over 70 percent of daily observations at the legal limit, see Figure 7). CBK overdraft access for the government (five percent of the latest audited central government revenues) is intended as a short-term liquidity buffer to address unforeseen liquidity needs. This pattern is not consistent with the overdraft's intended buffer role and complicates both monetary policy implementation and cash and debt management at the National Treasury. The extension to counties with access to the CBK overdraft facility in the new county-borrowing framework would further add to these challenges.

## F. Peru—Financial Dollarization and Price Stability<sup>19</sup>

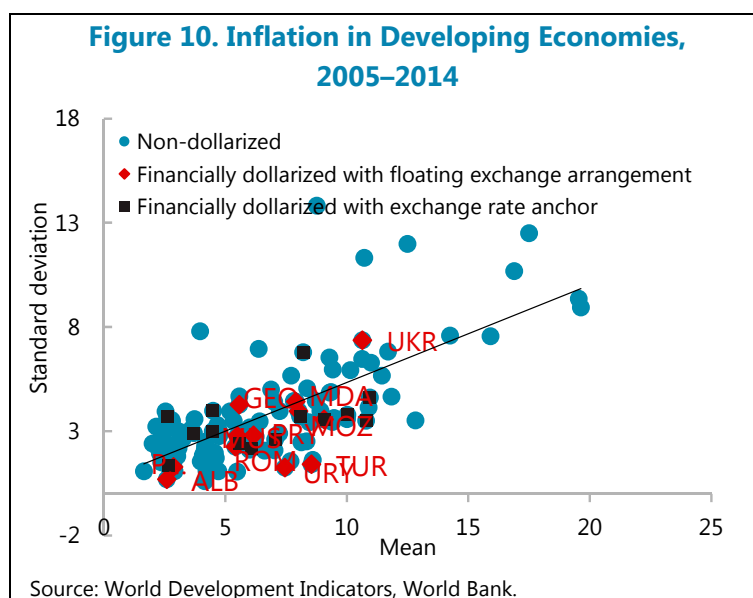
**65. Financial dollarization—which occurs when some financial assets and liabilities are denominated in foreign currency while the local currency remains the exclusive legal tender—**poses challenges to the conduct of monetary policy. The effectiveness of monetary policy is limited under financial dollarization in part because the stock of the monetary aggregates under the control of the monetary authority is only a fraction of the relevant monetary stock in the economy. The vulnerability of corporate and household balance sheets to large changes in the exchange rate and potentially high pass-through of exchange rates to domestic prices and foreign interest rates to domestic interest rates under financial dollarization also make it difficult to anchor inflation expectations and stabilize prices.

**66. Despite these challenges, a number of financially-dollarized economies have achieved price stability through a combination of a floating exchange rate regime<sup>20</sup> and some form of monetary policy framework**

including inflation targeting (Albania, Georgia, Moldova, Paraguay, Peru, Romania, and Turkey), monetary aggregate targeting (Mozambique and Uruguay), and mixed (Mauritius).<sup>21</sup> This case study aims to draw lessons for an optimal monetary policy design in a financially dollarized economy based on the experience of Peru. Peru is an interesting case for a number of reasons, including: it was the first partially dollarized economy to introduce an IT framework; the IT framework was introduced in the context of very high partial

dollarization (credit and deposit dollarization were about 80 percent in 2001); and Peru's IT framework has been very successful in anchoring and stabilizing inflation at a low level (close to the level in advanced economies).

**67. The implementation of the IT framework in Peru followed broad reforms of financial, monetary, and fiscal policies in 1991 and a decade of a monetary-aggregate-targeting regime, which was credited to have reduced and stabilized inflation from hyperinflation during the 1980s.** A key component of the reform that contributed to the success in reducing



<sup>19</sup> Prepared by Melesse Tashu based on Armas et al. (2015).

<sup>20</sup> Based on the classification in the 2014 Annual Report on Exchange Arrangements and Exchange Rate Restrictions.

<sup>21</sup> For the purpose of this analysis, economies are considered as financially dollarized if at least 30 percent of deposits are denominated in foreign currency.

hyperinflation was the central bank organic law, which granted autonomy to the central bank and made monetary stability its sole objective. The law prohibited the central bank from financing the public sector (including state development banks), granting guarantees, lending to any particular sector in the economy, and establishing a multiple exchange rate system. Fiscal discipline (the overall fiscal balance improved from a deficit of 8.3 percent of GDP in 1990 to a surplus of 2.8 percent of GDP in 1996) was also an integral part of the price stabilization program. As a consequence of these reforms and the central bank's strict control over the growth of money supply, inflation fell from over 400 percent in 1991 to 11 percent in 1995.

**68. With inflation falling to and stabilizing at low single digit levels in the late 1990s to early 2000s,** the central bank switched to an IT framework as monetary-aggregate targeting became less effective due to the weak correlation between monetary aggregates and inflation in a low-inflation environment.<sup>22</sup> The switch to the interest rate as an operational monetary policy target was also motivated by the need to develop a yield curve of interest rates for local capital markets. Developing local capital markets was considered to be an important component of the de-dollarization agenda as it became clear that achieving low inflation was not sufficient to reduce financial dollarization. In this regard, using interest rates as an operation target of monetary policy was seen as a means to achieve stable and predictable short-term interest rates and hence provide a benchmark for developing yield curves.

**69. Peru's IT framework was uniquely designed to take into account the adverse impact of financial dollarization on the effectiveness of monetary policy and promote de-dollarization over the long term.** More specifically, the IT system combines conventional monetary policy instruments (interest rate setting) with non-conventional instruments such as sterilized foreign exchange intervention and reserve requirements. The inflation target was set at a relatively low level (at  $2.5 \pm 1$  percent initially and  $2 \pm 1$  percent since 2007), compared to other emerging economies, to anchor Peru's level of medium- to long-term inflation to that of the United States and promote de-dollarization. The inflation forecasting model also explicitly takes into account the effects of dollarization on the effectiveness of monetary policy by specifying explicit equations for aggregate demand (IS curve) and the exchange rate in addition to the Phillips curve and monetary policy rule equations often used by conventional inflation-targeting central banks.

**70. Foreign exchange intervention aims to avoid large swings in the exchange rate, to contain the balance sheet effect in a dollarized economy** which could compromise the effectiveness of conventional instruments, and to accumulate international reserves. The accumulation of international reserves, which stood at about 31 percent of GDP at end-2014, is a critical element of building confidence in an otherwise vulnerable financially-dollarized economy. On the other hand, reserve requirements on foreign currency deposits are used to build buffers against liquidity and credit risks because the central bank cannot be a lender of last resort in foreign currency. Differential reserve requirements on foreign currency deposits and local currency deposits

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<sup>22</sup> See Armas and Grippa (2006).

(higher reserve requirements on foreign currency deposits) are also used to facilitate de-dollarization by increasing the cost of financial intermediation in foreign currency.

**71. Empirical assessment shows that Peru's IT framework has succeeded in anchoring inflation expectations, reducing the level and volatility of inflation,** and reducing the exchange rate pass-through to domestic prices. With the exception of 2008, following the global commodity price shock, inflation expectations have for the most part been well-anchored within the central bank's target range. Peru's level and volatility of inflation in the past decade have also been among the lowest in developing economies.

**72. The performance of Peru's IT framework is also comparable to that of regional peers, which do not face the challenges of financial dollarization.** The root mean square deviations of Peru's inflation (based on monthly data for 2002–13), both from the midpoint and band targets of the central bank, are lower than those of Brazil and Chile, but higher than those of Colombia and Mexico. The persistence or the half-life of inflation deviations in Peru is estimated at about 11 months for deviations from the target band and about 12½ months for deviations from the midpoint target, which are shorter than those of Brazil and Chile but longer than those of Mexico (comparison with Colombia is mixed).

**73. There is also statistical evidence that Peru's IT framework has succeeded in reducing the exchange rate pass-through to domestic prices.** A vector autoregression (VAR) model estimation of inflation with the exchange rate, the output gap, and international prices shows that the pass-through of the exchange rate to consumer prices abated following the introduction of the IT framework. In particular, the exchange rate had a positive and statistically significant impact on inflation in the sample prior to implementation of the IT framework, but not in the sample after implementation of the framework. A rolling VAR model<sup>23</sup> also shows a significant reduction in the exchange rate pass-through after the introduction of IT in Peru.

**74. In conclusion, Peru has been able to implement an effective monetary policy, overcoming the limitations of financial dollarization.** Its experience shows that independent monetary policy can be challenging but is possible in a financially-dollarized economy. This was achieved through a combination of conventional and non-conventional monetary policy tools. In particular, sterilized foreign exchange intervention and reserve requirements on dollar deposits are used as complementary policy instruments to contain foreign exchange and liquidity risks associated with financial dollarization and thereby safeguarding the effectiveness of conventional monetary policy tools. It is also important to underscore that reducing financial dollarization was not a pre-requisite but was a goal by itself for monetary policy in Peru. Financially dollarization was halved since the introduction of the IT framework in 2002 to about 40 percent at end-2014, thanks to an effective monetary policy and a concerted effort to develop local capital markets.

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<sup>23</sup> See Winkelried (2014).

## G. Rwanda<sup>24</sup>

**75. The National Bank of Rwanda (NBR) has multiple objectives, with primacy to price stability.** The primary objectives of the NBR consist of maintaining price stability and financial stability. The NBR aims to achieve these objectives while simultaneously supporting the government's development and growth agenda. While not made explicit, the NBR also places significant emphasis on a stable exchange rate.

**76. Since 1995, the NBR has adopted a monetary targeting regime.** Broad money (M3) acts as the nominal anchor and reserve money is used as the operational target to meet the price stability objectives. The NBR manages liquidity through three main instruments: open market operations, standing facilities, and reserve requirements. Since 2008, a key repo rate (KRR) has been used as the policy rate to signal the monetary policy stance. The central bank has legal independence in the implementation of its policy to meet its objectives, with regular meetings held between the central bank and the treasury to coordinate monetary and fiscal policies.

**77. Monetary policy has been formulated in the context of challenging domestic and external environments** (Berg et al., 2013; Charry et al., 2014). On the supply side, food and oil price shocks have played an important role in inflation dynamics. On the demand side, major shocks have included the global financial crisis and the delays in donor disbursement in 2012. The initial response to the 2012 aid shock was to use reserves to cushion the impact on the economy. However, as international reserves declined, the NBR allowed for greater exchange rate flexibility, with the Rwandan franc depreciating 20 percent between January 2012 and August 2015.

**78. The NBR has had significant success in stabilizing inflation and anchoring inflation expectations, but challenges remain.** Following the spike in 2009, inflation has since hovered around 5 percent, broadly in line with the NBR's unannounced informal inflation target. The target has remained informal as the central bank builds its capacity to move to a formal framework, including adopting a forward-looking approach to monetary policy in terms of forecasting and communicating. The NBR however continues to face a number of policy challenges:

- (i) **Multiple and potentially conflicting objectives:** The NBR's primary objective of price stability, may sometimes conflict with the other objectives: growth, credit to the private sector, and exchange rate stability. The *de jure* exchange rate arrangement is classified as floating, but the *de facto* exchange rate classification is characterized as other managed arrangement. The dual targets on both inflation and the nominal exchange rate had been feasible in the context of a rather closed capital account (Berg et al. (2013)).
- (ii) **Weak transmission mechanism:** There has been a disconnect between changes in the policy rate and its impact on the money market and lending rates, as the NBR has not actively

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<sup>24</sup> Prepared by Vimal Thakoor.

managed market liquidity to ensure that short-term market rates are properly aligned with the policy rate. Beyond the shallow financial system, other reasons have been put forward to explain this phenomenon:

- (a) The slow response of the KRR to changing monetary conditions and market developments has potentially undermined its signaling role and its effectiveness in the transmission mechanism.
  - (b) The NBR conducts repo transactions with commercial banks to maintain interbank rates in a corridor around the KRR. However, the coexistence of both quantity and price targets has, on occasions, led to inconsistent signaling of the policy stance.
  - (c) Commercial banks face high operational costs, which hinder their ability to lower their lending costs. The high operational costs reflect a combination of inefficiencies, due to the size of the market and many banks competing for the same client base, and the high cost of procuring finance. The NBR has in some instances had to recourse to moral suasion to encourage commercial banks to reduce their lending rates.
- (iii) **Excess liquidity:** Rwanda's interbank and secondary markets remain thin and transaction volumes are low. This has increased the preference for banks to hold liquidity beyond the regulatory requirements to meet unexpected shortages. With banks flush with liquidity, the need for interbank transactions has been limited and in turn the intended price discovery has not materialized. Until recently, the instruments for mopping up liquidity were mostly short-term and this resulted in frequent rollover of short-term instruments by the central bank to mop up the excess liquidity in the system.

**79. The monetary stance is decided by the monetary policy committee (MPC).** The MPC, chaired by the central bank governor, meets on a quarterly basis and decides on changes to the monetary policy stance based on both international and domestic economic and financial sector developments. The MPC is followed by a press briefing by the central bank governor. The central bank also publishes its twice yearly governor's statement on monetary policy and financial stability to inform market participants and stakeholders of recent economic developments.

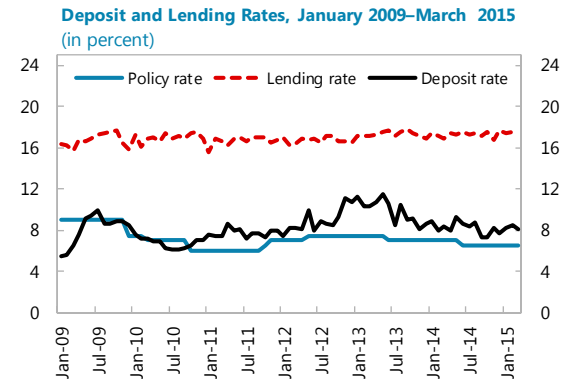
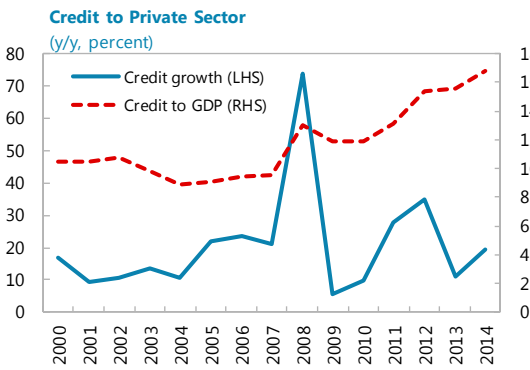
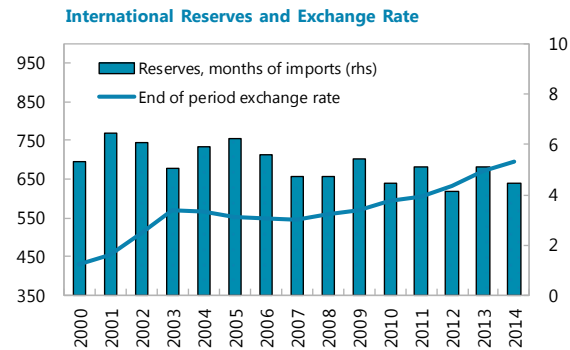
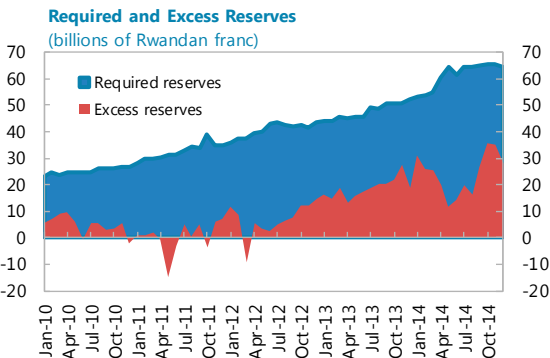
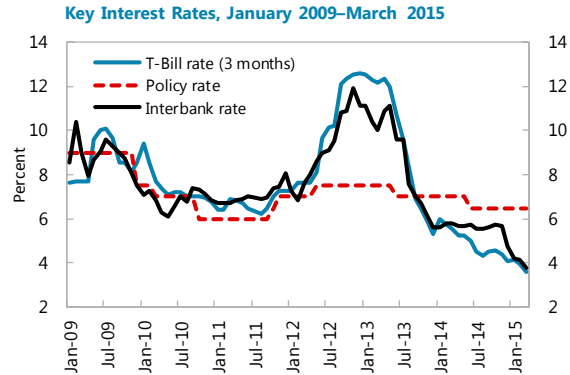
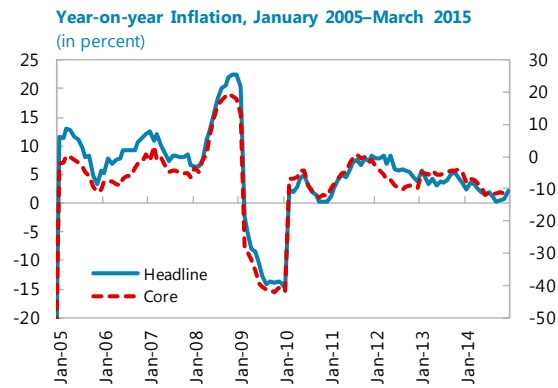
**80. The NBR has been implementing measures to improve transmission and ensure greater relevance for the policy rate.** Reserve money will continue to be the anchor of monetary policy even though changes in the velocity of circulation brought about by ongoing financial deepening at times pose a challenge. To absorb liquidity, the NBR has started issuing longer term instruments, and it has reactivated the secondary market to support the development of an active interbank market.

**81. Going forward, the NBR plans to move to a more forward-looking framework.** In support of the work of the MPC, forecasting models are being developed to better understand the transmission channels, and high-frequency indicators are being improved to provide the MPC with the most up-to-date information. The NBR is also bolstering its communication strategy with market



participants to promote a better understanding of monetary policy decisions and to guide expectations formation.

**Figure 11. Rwanda—Evolution of Key Monetary Indicators**



Source: IMF staff calculations.

## H. Uganda<sup>25</sup>

**82. The monetary policy framework has evolved substantially in Uganda over the last decade, with the BOU moving from strict money targeting to a more flexible form of money targeting in October 2009, and eventually transitioning to IT in July 2011.** The BOU's motive for these moves was the recognition that the efficacy of the money targeting framework (MTF) used since the early 1990s was being undermined because money demand and the money multiplier were becoming unstable and unpredictable as a result of the development of the financial sector and its increasing integration with the global economy. An IT framework offered better opportunities for signaling the monetary policy stance through the announcement of a policy interest rate and greater scope for short-term monetary policy fine tuning. After reviewing the experience of developing countries, Freedman and Otker-Robe (2009) identified three essential preconditions for the adoption of IT: (i) the central bank must have inflation as its primary policy target; (ii) it must have instrument independence; and (iii) there must be no fiscal dominance. The BOU viewed that it met these preconditions and was ready to announce the adoption of IT.

**83. The main features of the new IT framework in Uganda, compared to the MTF, are illustrated in Table 2.** The primary policy objective of controlling core inflation and the numerical 5 percent core inflation medium-term target remained unchanged. The BOU added a secondary objective—stabilizing real output as close as possible to estimated potential output—modifying a previous view, no longer valid, that real output was exogenous to demand management policies. A new operating target—the 7-day interbank interest rate—replaced the MTF's operating target of reserve money. There is no explicit need for an intermediate target under IT, although the inflation forecast can be viewed as such. Because good communication with the public is essential to influencing inflationary expectations and building monetary policy credibility, the BOU overhauled its communications policy, with the centerpiece being the monetary policy statement provided by the Governor after each Monetary Policy Committee (MPC) meeting.

**Table 2. Uganda—Key Features of the Monetary Targeting and IT**

	<b>Monetary Targeting</b>	<b>Inflation Targeting</b>
<b>Primary policy objective</b>	Inflation	Inflation
<b>Secondary policy objective</b>		Output
<b>Instruments</b>	Primary securities auctions	Secondary market operations
<b>Operating target</b>	Reserve money	Short-term interest rate
<b>Intermediate target</b>	Broad money	Inflation forecast
<b>Frequency of adjustments to policy stance</b>	Usually annually	Monthly if needed
<b>Communications</b>	Minimal	Integral

Sources: IMF; Bank of Uganda.

<sup>25</sup> Prepared by Ana Lucía Coronel, Ari Aisen, Clara Mira, and Martin Brownbridge (Advisor to the Governor of the Bank of Uganda).

**84. In this case study, we focus on four aspects of the monetary policy framework that have evolved during Uganda’s transition period and provide important lessons for other modernizers.** In particular, we look at: (i) improvements in the operating framework; (ii) evolution of the transmission mechanism; (iii) building of analytical capacity; and (iv) issues related to the threat of fiscal dominance.

### **Improving the Operating Framework**

**85. Short-term interest rates were very volatile under the MTF, but the introduction of a policy rate as the operating target and improvements in the operating framework have resulted in reduced volatility.** Prior to October 2009, the BOU adhered closely to its money targets. Shocks to money demand thus generated substantial movements in interbank rates that did not signal policy intentions and were often temporary and, as a result, had little effect on lending rates or other aspects of the transmission mechanism. Since October 2009, the BOU allowed for more flexibility in daily money market operations to smooth short-term money market rates. This immediately reduced the volatility of interbank rates. In July 2011 the BOU officially introduced the central bank rate (CBR) as a target for the interbank rate. These changes to the policy framework and operations set the stage for changes in short-term interest rates (specifically the CBR) to have a larger impact on the economy.

**86. The switch from the MTF to IT has involved the introduction of regular interventions in the money market to enable the BOU to align a short-term risk-free interest rate with the CBR.** The BOU offers repos or reverse repos to commercial banks, depending on whether it wants to withdraw or inject liquidity, with all bids at the CBR accepted (i.e., the BOU fixes the price and allows the market to determine the quantity, also referred to as a fixed-rate full-allotment system).<sup>26</sup> Until May 2012, the BOU had auctioned a fixed quantity of repos or reverse repos. The switch to the current modalities ensures that the repo/reverse repo rate matches the CBR at every issue, and obviates the need for the BOU to make precise liquidity forecasts before issuing a repo or reverse repo.

**87. The optimal management of liquidity through money market operations requires the central bank to have an adequate quantum and range of marketable instruments.** Because repos are short-term instruments, they become less effective for liquidity management when it is necessary to lock up large volumes of liquidity for longer than a few weeks. In such circumstances a longer term instrument is required. The ongoing recapitalization of the BOU with Treasury bills and bonds has provided the central bank with a useful policy instrument to mop up structural liquidity, as the BOU can now sell these securities on the secondary market for this purpose.

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<sup>26</sup> The BOU will accept bids below the CBR for the repo and above the CBR for the reverse repo, but these are rare.

## Improved Transmission Following the Modernization

### **88. Policy transmission has improved substantially after the adoption of IT and improved operational framework despite financial markets remaining relatively shallow in Uganda.**

Uganda fares poorly when it comes to standard measures of financial depth (credit to GDP, stock market valuation as a share of GDP, etc.). Despite this, there is growing evidence that suggests that monetary policy transmission has improved following the adoption of IT and the improvements to the operating framework described above (Berg et al. (2013)).

**89. Changes in the policy rate are transmitted to other rates in the economy and have a significant impact on prices and output as well.** The link between the CBR and the seven-day interbank rate works well in Uganda. Since April 2012, the average monthly seven-day interbank rate has been close to the CBR, deviating in absolute terms on average by only 41 basis points over this 36-month period.<sup>27</sup> Although average time deposit rates have been slightly more volatile, they have tracked the CBR quite closely.<sup>28</sup> Bank lending rates are stickier than deposit rates and seem to respond less to changes in the CBR, although lending rates did go up substantially during the large tightening period initiated in 2011. Furthermore, monetary policy shocks affect both prices and output in Uganda, and there is evidence that the bank lending channel works relatively well, although the transmission is moderate compared to that in advanced economies. There is also evidence of a well-functioning interest rate channel, especially after the adoption of IT.<sup>29</sup>

## Exchange Rate Management

**90. Although Uganda has a flexible exchange rate, the BOU intervened in the foreign exchange market to dampen exchange rate volatility both in the MTF and after the introduction of IT.** Interventions under the IT framework are generally sterilized to protect the inflation objective, which has priority.

**91. In the MTF, managing volatile foreign exchange flows (especially aid) posed significant challenges for the BOU as it was difficult to separate the monetary policy decision from decisions regarding foreign exchange interventions.** This often took place in the context of large aid flows and the related fiscal expansion. The decision to accumulate reserves and whether to sterilize or not was set against the need to hit reserve money targets and often pitted concerns over exchange rate appreciation against views about short-term interest rates. This sometimes resulted in unwarranted changes in monetary conditions in the face of foreign exchange flows.

<sup>27</sup> The months in which there were larger deviations were mostly those in which the exchange rate was under strong pressure, and the BOU bought dollars to smooth excessive volatility without immediately sterilizing the operations.

<sup>28</sup> Since April 2012, the average absolute deviation between the average monthly time deposit rate and the CBR was 97 basis points.

<sup>29</sup> See Sande and Apaa Okello (2013) for transmission of short-term rates to lending rates; Davoodi et al. (2013) and Berg et al. (2013) for effect of monetary shocks on output and inflation; Abuka et al. (2015) for evidence on bank lending channel; and Opolot (2013) and Mugume (2011) on the interest rate channel.

**92. The move to IT has helped separate decisions regarding monetary conditions from those regarding foreign exchange interventions.** The BOU now communicates the stance of monetary policy through the announcement of the CBR and should sterilize any foreign exchange interventions so as to keep the 7-day interbank rate close to the announced CBR. Announcing the monetary policy stance in terms of an interest rate has helped clarify the policy stance, and separated the monetary policy decision from the exchange rate management decision. However, there are times when foreign exchange interventions lead to the interbank rate deviating from the announced policy stance (the BOU doesn't sterilize the intervention immediately), though such instances are becoming increasingly sporadic. Furthermore, in an attempt to clarify the framework, the BOU has introduced greater transparency into its reserve accumulation policy by pre-announcing to the market the amounts of weekly foreign exchange purchases, helping reduce uncertainties related to the foreign exchange market.

### Analytical Capacity

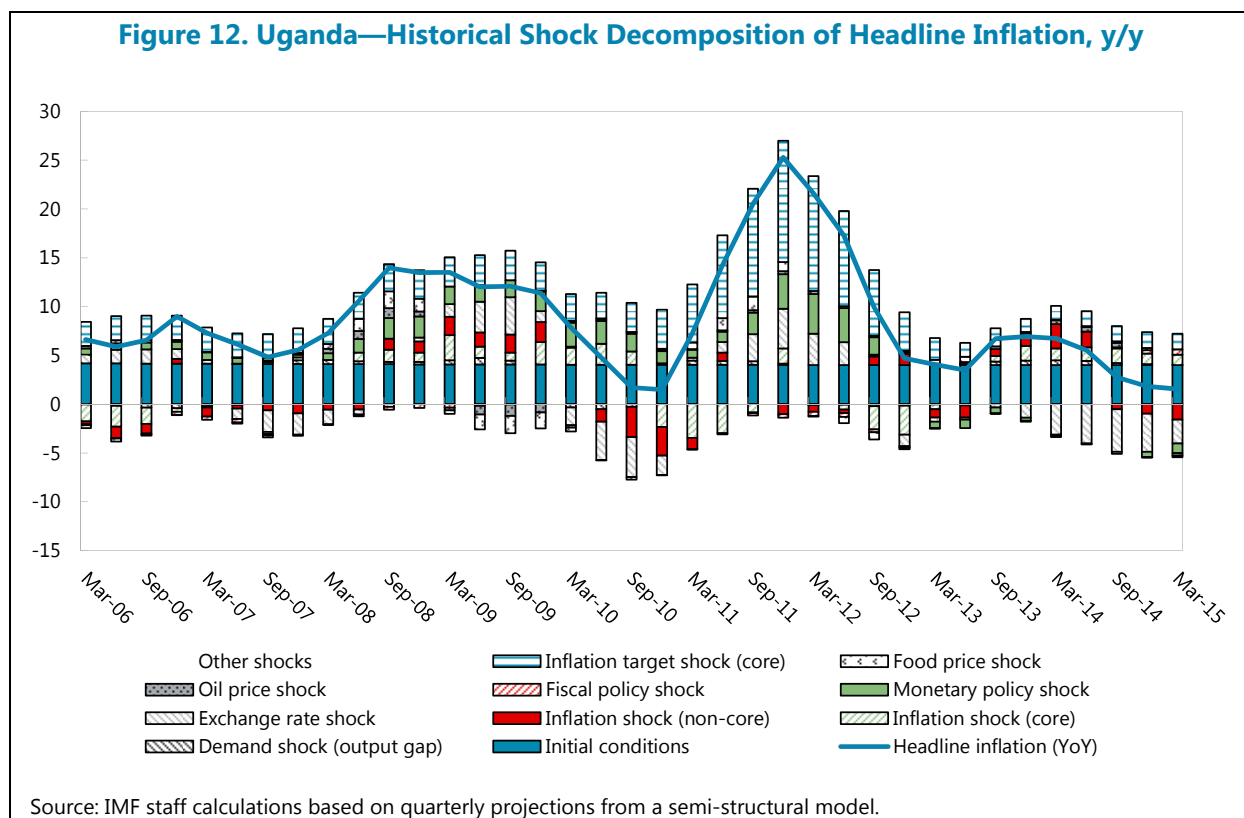
**93. Producing robust inflation forecasts is an essential part of the IT framework, and despite the difficulties involved, the BOU has made substantial progress in this regard.** The determinants of inflation in Uganda and other LLMICs are multidimensional, entailing large and frequent supply and demand shocks, which makes the task of producing robust inflation forecasts especially challenging. The vector autoregression (VAR) model initially used by the BOU was suitable for short-term but less so for medium-term forecasts because of the volatility in inflation—on average core inflation showed a variance of 2.6 percentage points over a 3-month period but this rose to 7.5 percentage points over a 12-month period (Table 3). More recently, the VAR model was replaced with a more forward-looking core semi-structural model which is one part of the larger Forecasting and Policy Analysis System (FPAS).<sup>30</sup> In addition to the use of the core model, the BOU uses expert judgment, private sector forecasts, and market intelligence when making its decisions. Figure 12 shows the key determinants of inflation in Uganda from the core model, illustrating that in Uganda, much of the volatility of inflation emanates from the high pass-through from the exchange rate, agricultural supply shocks, and domestic demand factors. Given the importance of a good understanding of the inflation process for building robust forecasting models and formulating monetary policy, this is an issue for which more research would be very useful.

**Table 3. Uganda—Variance Between Current and Past Inflation Rates**

Interval	3 months	6 months	9 months	12 months	15 months
Variance (percentage points)	2.6	4.7	6.4	7.5	8.4

Source: Bank of Uganda.

<sup>30</sup> See Laxton et al. (2009) for a description of a generic FPAS.



### Safeguards Against Fiscal Pressures

**94. Under the MTF, fiscal and monetary policies were intertwined.** The government did not explicitly issue securities to fund its domestic financing requirement; the BOU issued them through primary auctions to mop up liquidity to meet its reserve money target. From the standpoint of an IT central bank, this was problematic for two reasons. First, it was an obstacle to the transparency of monetary policy, one of the essential ingredients of a successful IT framework. Second, there were no watertight institutional safeguards against government borrowing from the BOU, despite the limit on advances for cash management of 18 percent of recurrent revenues on borrowing established in the BOU Act.

**95. In 2012, the authorities clearly separated the domestic financing of the budget through issuances of securities in primary auctions from monetary policy operations, now conducted in the secondary market.** While this separation enhanced transparency, there are still no automatic and comprehensive institutional constraints, such as explicit rules, on the BOU providing financing to the government.<sup>31</sup> While net financing of the budget from the BOU has not

<sup>31</sup> This is complicated by the existence of several government accounts at the central bank, including the Uganda Consolidated Fund (UCF)—through which most government day-to-day transactions take place—project accounts, and the oil, energy, and infrastructure funds. Resources in project accounts and the funds have specific and at times

(continued)

been a usual practice in the recent past, it nonetheless happened when other sources of financing faltered, including in fiscal years 2011/12 and 2012/13, when donor support sharply declined.

## Conclusion

**96. The introduction of IT has strengthened the effectiveness of monetary policy.** The BOU has been able to clearly signal its monetary policy stance and its inflation forecast through setting the CBR and the associated Monetary Policy Statements. Monetary policy formulation has been significantly strengthened by the use of inflation forecasting techniques. Recent experience, together with econometric studies, provides evidence that the interest rate, bank lending, exchange rate and possibly also inflationary expectations channels play a key role in monetary policy transmission in Uganda. The transparency of monetary policy has been enhanced by the clear separation of monetary policy operations from those to finance the budget. Economic commentaries from sophisticated market participants and analysts suggest that the BOU has gained credibility as an “inflation hawk” since the introduction of IT. The Ugandan experience over the past four years supports the contention that, even if not all preconditions for the successful introduction of IT are present, LLMICs could strengthen their monetary policy by adopting IT.

**97. Work under way to address the remaining challenges will further strengthen the IT framework.** On the institutional side, it is important to provide explicit safeguards against automatic overdrafts of government accounts at the BOU. This can be achieved in the short-term by formalizing an agreement to establish a predetermined floor in the Uganda Consolidated Fund (UCF). In the medium-term, reforms to the legal framework are needed to reduce the existing limits for intra-year advances to the government and to eliminate the possibility of automatic overdrafts. The ongoing central bank recapitalization will provide the BOU with additional marketable instruments for longer-term open market operations. On the operational side, there is a need to better understand the quantitative importance of key inflation drivers that show high volatility, such as the exchange rate and food prices, to achieve more robust medium-term inflation forecasts. This is a matter that deserves more research. Finally, as the BOU’s monetary policy gains further credibility through time and as the financial system deepens, the monetary policy transmission mechanism is expected to become more effective.

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earmarked uses. The net government position—all accounts considered—is positive, but the UCF has a negative balance.

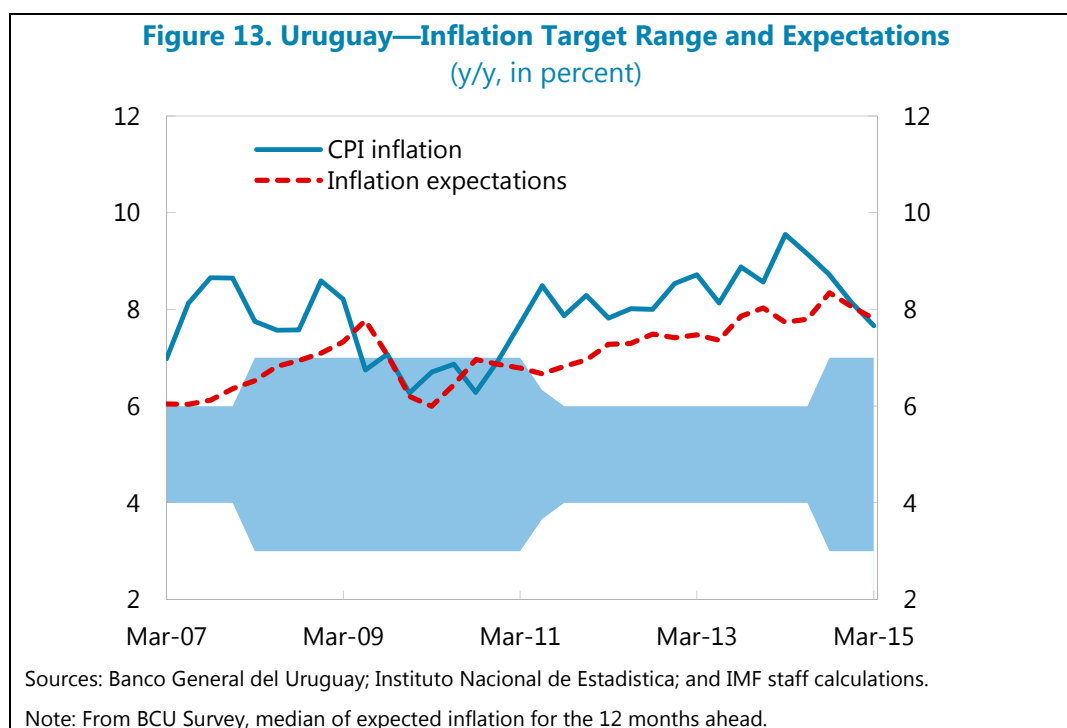
## I. Uruguay<sup>32</sup>

### Overview

**98. The monetary policy framework in Uruguay went through several transformations over the last decade.** In 2007 a framework comprising elements of money targeting along with exchange rate management and an inflation objective was replaced with an IT framework using a short-term interest rate as an operational target. In mid-2013 the Central Bank of Uruguay (BCU) switched from the short-term interest rate target to using money growth as the operational target within the IT framework.

### Economic Context

**99. The BCU adopted the IT framework with a short-term interest rate as an operational target in 2007 in the context of CPI inflation exceeding the upper bound of the target range.** The inflation rate temporarily decreased amid slowdown in economic activity, but subsequently drifted upward, significantly exceeding the three to seven percent inflation target range. The inflation target range itself also changed repeatedly during this period: it was widened in 2007, then narrowed in 2011, and widened again in 2014.



<sup>32</sup> Prepared by Yulia Ustyugova.



**100. The policy stance reflects the authorities' efforts to contain inflation. In 2007–09, the BCU raised the monetary policy rate three times to tame the inflationary pressures.**

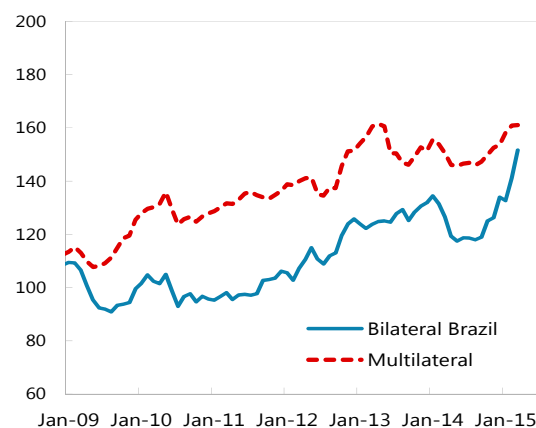
Following countercyclical loosening in 2009–10, the BCU reverted to a tightening phase and raised the monetary policy rate several times in 2010–13, cumulatively by 3 percentage points. In real terms however, interest rates fell into negative territory, as nominal rates did not keep up with rising inflation.

**101. Monetary policy was complicated by the continued appreciation of the peso from late**

**2007 until mid-2013 and surging portfolio inflows between 2011 and mid-2013.** Significant sterilized intervention by the BCU to purchase foreign exchange boosted the international reserves but the peso continued appreciating. Meanwhile, inflation exceeded the target and kept rising. Because the positive nominal interest differential versus other emerging market economies was seen as the main driver of portfolio inflows and ensuing appreciation pressures, the BCU resorted to using non-interest policy tools to contain inflation: it raised average reserve requirement rates and introduced marginal reserve requirements for bank deposits. Also, it set reserve requirements on non-resident purchases of government securities to discourage portfolio inflows.

**102. In June 2013 the BCU announced that starting from July, it would switch from using the overnight interest rate as the operational target to setting reference ranges for the growth of a monetary aggregate within its IT framework.** The authorities deemed the transmission from the overnight interest rate target to deposit and lending rates to be modest in the context of excess liquidity and elevated dollarization in Uruguay's banking system.<sup>33</sup> They felt that targets for monetary aggregates could have a more direct and stronger influence on domestic demand than short-term interest rates.

**Figure 14. Uruguay—Real Exchange Rates**  
(index 2005=100)



Source: IMF staff calculations based on Instituto Nacional de Estadística data.

Note: The real exchange rate against Argentina is calculated using the unofficial CPI for Argentina and the average of the unofficial and official exchange rates for the Argentine peso.

<sup>33</sup> The loan dollarization in Uruguay is about 50 percent, while the deposit dollarization is at 70 percent.

## Monetary Policy Framework and Performance

**103. Targets.** The short-term policy interest rate target was replaced with the monetary aggregate (M1 plus saving deposits (M1+)) trajectory as a reference indicator, with a target band for the average year-on-year (yoy) growth rate of M1+ being set at the beginning of each quarter for the quarter ahead.

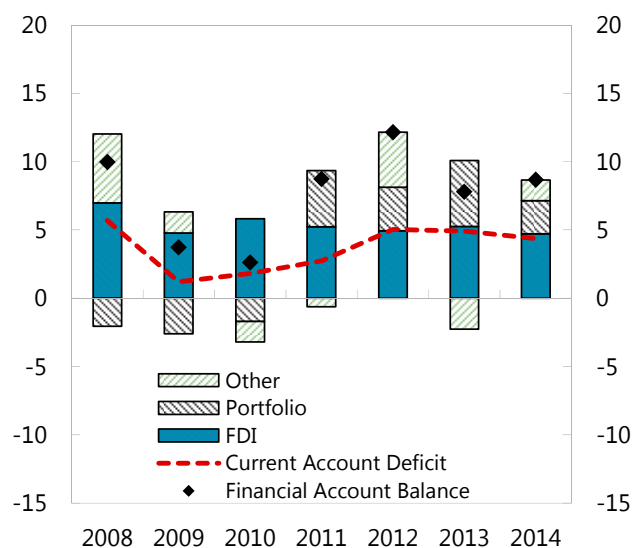
**104. Objective.** The change in monetary framework was to facilitate a disinflation process: the new framework envisaged a gradually declining path for money growth consistent with a declining path for inflation. The BCU announced its intention to reduce M1 growth from an average of about 14 percent in the previous year to 8 percent by mid-2015.

**105. Instruments.** The set of monetary policy instruments has been limited to auctions of BCU securities, reserve requirements, and a liquidity window to cover daily shortfalls at a punitive rate.

**106. Performance.** The new framework has delivered a significant decline in money growth rates. The initial M1+ targets set by the BCU for 2013:Q2 represented a broadly unchanged pace of monetary expansion relative to 2013:Q1 but a slower one than in the last two years. The M1+ growth in the first quarter of the new framework exceeded the target range set for this period, as the BCU and the market were adjusting to the new operational framework, spurring uncertainty about the intended policy stance. In the next quarters, however, the growth of M1+ had mostly come in below the target ranges and declined to near 8 percent by 2014:Q3, faster than the BCU announced originally.

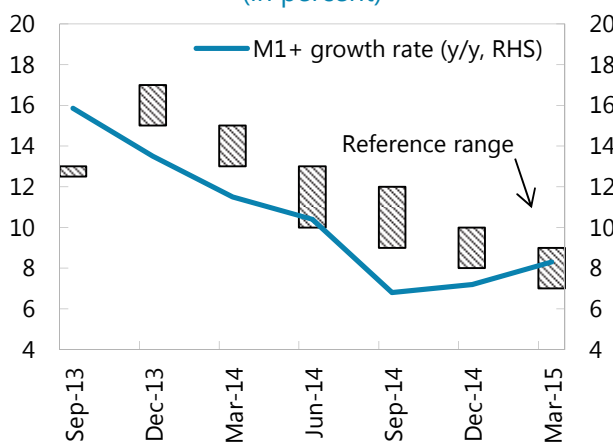
**107. Assessing the policy stance requires looking at the short-term interest rate.** The overnight interest rate has fluctuated widely (in a range from 2.5 percent to almost 40 percent), especially in the first couple of months of the new framework, reflecting to some extent the learning

**Figure 15. Uruguay—Financial and Current Account Balance**  
(in percent of GDP, net)



Sources: Banco General del Uruguay; and IMF staff calculations.

**Figure 16. Uruguay—M1 + Growth Reference Ranges and Outturns**  
(in percent)



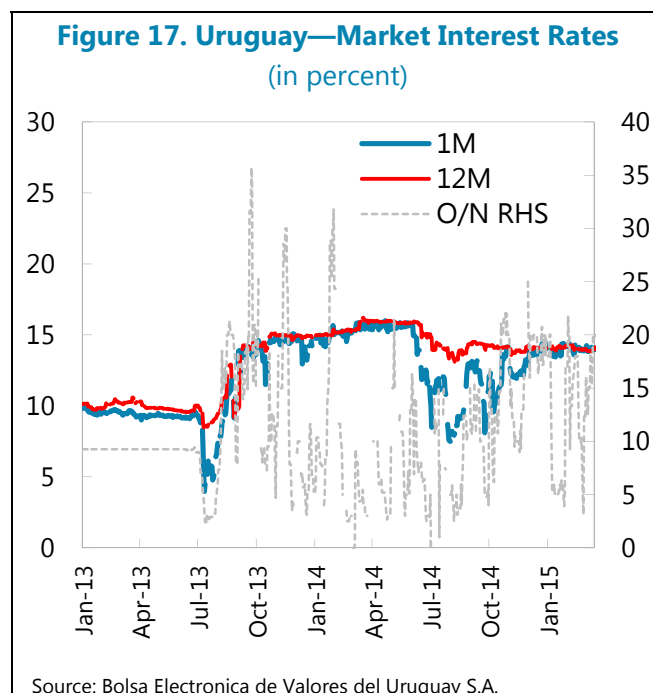
Sources: Banco General del Uruguay; and IMF staff calculations.

period for the new framework. Although volatility has subsided somewhat, the gyrations in interest rates are reflective of the operational challenges associated with money targeting.

**108. Looking at slightly longer horizons, e.g., interest rates on one-month paper, shows considerable tightening although with some accommodation through 2014.**

The yield curve has shifted upward, and the peso interest rates have risen by 400–500 basis points above the levels prior to July 2013 to 14–15 percent, though with some intra-year variations.<sup>34</sup>

**109. Overall, the new framework has delivered a significant tightening in the monetary policy stance.** Reflecting monetary policy tightening as well as cooling demand, a slowdown is now taking hold for both peso and foreign exchange loans. Bank lending rates have risen, although the average deposit rates remained almost unchanged.



**110. The recent volatile external economic environment however, makes it difficult to assess the efficacy of this framework in anchoring expectations.** Major currency depreciation spurred in part by the Fed's tapering announcement in mid-2013 fueled inflation and created an important challenge for the disinflationary effort within the new framework. As of mid-2015, the peso has weakened by about 37 percent against the U.S. dollar, as the BCU intervened only occasionally in the foreign exchange market to limit the excessive volatility around the depreciation trend. Headline inflation remains above the target range of 3–7 percent.

### Key Challenges Moving Forward and Lessons

**111. The new framework highlighted some operational challenges related to money demand. Money demand has proven difficult to predict.** The M1+ growth rate ended outside the reference range in five out of the seven quarters of implementation. Analysis based on a calibrated macroeconomic model suggests that the observed deviations from the reference range mostly reflected money demand shocks—i.e., unexpected decreases in money demand. The BCU has been working with the year-on-year growth rate of M1+, which allows abstracting from seasonality. However, setting a smooth path for year-on-year growth could lead to a carry-over of past errors in predicting money demand, as the growth rate is applied to the M1+ level one year ago.

<sup>34</sup> As the change in the operational framework coincided with the Fed's tapering announcement, the initial increase in interest rates reflected both external and domestic factors.

**112. The role of interest rates in the framework. The central bank explicitly abandoned the use of a policy rate for determining and signaling the policy stance.** This has put an additional premium on communication efforts, because money targets are less indicative of the intended monetary stance than an interest rate target.

**113. It is important that a policymaker relies on a well-crafted analytical framework to calibrate the policy stance appropriately—to analyze the deviations of money growth from the reference range, to forecast money demand in a manner consistent with a desired level of interest rates, and to react to new shocks.**

- *Forecasting money demand is important* for setting consistent money targets, because significant errors in predicting money demand may generate large and persistent changes in the policy stance. There is a need to analyze the deviations of M1+ growth from the reference range and ensure that errors in predicting money demand do not get carried over. This could be the case with excessively smooth targets, especially if these are set on year-on-year growth. Accepting some variability in money targets is essential for calibrating the policy stance appropriately—both to correct for past errors in predicting money demand and to react to new shocks.
- *Money targeting needs to be flexible and not require strict adherence to money targets.* In the case of Uruguay, undershooting targets over several quarters was appropriate in view of the disinflation objective, as keeping M1+ growth in the originally-announced reference range would have implied a looser monetary stance. In the converse case of higher-than-expected money demand however, it would be preferable to avoid overshooting targets and hold on to the gains in lowering inflation. More generally, policy decisions need to be informed by an assessment of the desired level of short-term interest rates.
- The operational challenges put a *premium on communication effort*. Money targets amid volatile money demand are less indicative of the intended monetary stance than interest rate targets. Setting a smooth path for growth of a money aggregate could facilitate communication but lead to a carry-over of past errors in predicting money demand. A bumpy growth path for money targets requires well-crafted communication by a central bank educating the public about the volatile nature of money demand and elaboration on the transmission mechanism of monetary policy.

**114. Finally, the current monetary policy stance in Uruguay—with short term interest rates about 500–600 basis points above inflation—is consistent with the goal of lowering inflation.**

The substantial increase in real interest rates since mid-2013 and the achieved slowdown in M1+ growth represent a welcome tightening in financial conditions. However, more needs to be done to durably reduce inflation to the middle of the target range. A multi-dimensional disinflation strategy is needed to bring inflation to the mid-point of the target range. Such a strategy would involve maintaining a monetary policy stance tight enough to keep inflation on a downward trend, moving towards tighter fiscal policy, reducing the backward-looking component of wage setting to temper inflation persistence, and bolstering the central bank's influence on inflation expectations through well-crafted communication efforts. Enhanced central bank autonomy would also be beneficial.

## OTHER EXPERIENCES WITH MONETARY POLICY

### A. The Experience of Advanced and Emerging Market Economies During the Modernization Process of Monetary Policy Regimes<sup>35,36</sup>

#### The Cause for a Change

**115. In general, the transition to more effective monetary policy frameworks was motivated by unfavorable experiences with nominal anchors in terms of the exchange rate and money, as well as a desire to lower inflation and anchor inflation expectations through a simple observable target variable.** Virtually all countries had a history of relatively high inflation and high inflation expectations premiums (Freedman and Laxton (2009)). By the end of the 1980s, the traditional policy mix of a fixed exchange rate and monetary targeting was failing to anchor inflation expectations in many advanced markets (AMs). The monetary aggregates were not stable enough to be a reliable basis for policy (UK, Canada). The exchange rate anchors were not effective either and often impossible to keep (Freedman and Laxton (2009)). The same experience with the traditional anchors would be repeated by many emerging markets (EMs) in the mid-1990s.<sup>37</sup>

**116. Many countries were therefore looking for a framework that would anchor inflation expectations and reduce inflation.** This was the case of New Zealand and Canada among the AMs and of Israel, Poland, and Chile among the EMs. In other cases, countries were pushed out of their fixed exchange rate and money targeting frameworks under market pressure. This was the case of the United Kingdom, Finland, and Sweden among the AMs, and of Brazil and the Czech Republic among the EMs. In certain cases, the modernization process started out from a general macroeconomic crisis (e.g., Turkey and Thailand).

**117. In EMs the problems with previous regimes often stemmed from a pursuit of a number of different intermediate and operational targets.** A number of central banks were simultaneously pursuing low inflation, exchange rate stability and competitiveness including those in Chile, the Czech Republic, Poland, Brazil, and Israel (Otker-Robe and Vavra (2005)). The inconsistencies among these objectives intensified because of rapid capital flow movements, as the international financial markets became more integrated and these countries liberalized their capital accounts. The problems were especially acute in smaller EMs, in which the pressure to sterilize

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<sup>36</sup> The experiences of the following AM and EM economies have been studied for this paper: Albania, Armenia, Brazil, Canada, Chile, Costa Rica, Colombia, the Czech Republic, Georgia, Guatemala, Hungary, Indonesia, Israel, Mexico, Moldova, Norway, New Zealand, Peru, Philippines, Poland, Romania, Russia, Serbia, Thailand, Turkey, Ukraine, the United Kingdom, and Uruguay.

<sup>37</sup> The link between money and inflation was falling apart or monetary targeting was considered to have contributed to unnecessarily deep recessions (e.g., in Philippines). However, there are also cases among the EMs when the stability of monetary relationship provided a guideline, which accompanied the transition to a more effective policy framework for some time (e.g., Colombia, Indonesia).

capital flows put money supply out of control, putting pressure on the exchange rate and exacerbating internal imbalances (Colombia, Czech Republic, Hungary, Serbia)—see Box 1. However, larger EM economies, e.g., Brazil and Mexico, were affected too.

**118. Some country specific elements also played a role (Freedman and Otker-Robe (2009)).**

The requirement to fulfill EU integration criteria precipitated the modernization process in a number of Eastern European economies (e.g., Romania, Hungary, and Moldova). In Israel and Chile, explicit inflation numbers (which later evolved into inflation targets) played a role in the choice of a slope for a crawling peg.<sup>38</sup> In Canada, the central bank was searching for a way to lower inflation expectations in the wake of the introduction of the goods and services tax, which was expected to trigger higher inflation and a resurgence of inflation expectations. Once IT became more common in EMs, it also made its way into IMF programs, with Brazil as the pioneer in 1999.

**119. In summary, it appears that the nature of the trigger did not matter for success.**

However, it affected the sequencing and speed of implementation of elements of more effective monetary policy. In particular, the transitions triggered by crisis often forced accelerated development of inflation as an alternative anchor with all the supporting elements, although the sequencing would not always be as optimal as in economies transitioning more gradually for reasons other than a crisis.

### The Selection of a New Framework

**120. Most countries strengthening their policy frameworks have chosen to have an inflation objective, but very few would qualify for what could be labeled as ‘full-fledged’ IT.**

Ultimately, practically all transitioning economies abandoned exchange rate bands and targets, choosing some form of a flexible exchange rate regime with relatively infrequent foreign exchange (FX) interventions.<sup>39</sup> Most AM central banks chose full-fledged IT or at least embraced the same principles (Carare and Stone (2003)) following the good experiences of the early IT adopters. However, among the EMs in general, the exchange rate has retained a special status as an important instrument/operational variable until recently. In many of them it has not yet lost its role in anchoring expectations, although it ceased being an official target many years ago (e.g., Georgia, Serbia, and Moldova). These modalities of inflation targeting regimes would typically be characterized as hybrid or IT-lite regimes (Roger et al. (2009); Stone (2003)).

**121. In EMs, the process of choosing the new framework reflected a growing emphasis on reducing inflation as compared to other goals (e.g., competitiveness), but also the growing comfort in understanding the analytics of an inflation-interest rate framework.** For instance, Colombia abandoned the monetary base, an intermediate target during the crawling band era of

<sup>38</sup> At the time there was no clear communication on what the targets meant and what role the central banks was expected to play in achieving the target.

<sup>39</sup> Costa Rica is one of the exceptions with both an inflation target and exchange rate bands until it lifted the bands in early 2015.

1990s, as an official intermediate target in 1999 with floating the currency and adopting IT. However, the monetary base continued to receive considerable emphasis in the policy decision making process for some time.<sup>40</sup> Indonesia used reserve money as the intermediate target in setting the policy rates for many years after abandoning the peg in 1997. Philippines used both money and inflation targets for a long period, gradually increasing the weight on the latter. Mexico too chose a monetary anchor (effectively in the form of net domestic assets) in the aftermath of the 1994 peso crisis before realizing that it was insufficient to stabilize inflation expectations. Yet Mexico used a quantitative operational target in the form of borrowed banking reserves for many years.

**122. For countries that started with an exchange rate anchor, the choice of the intermediate target reflected closely the ability to deal with a fear to float and the speed of embracing exchange rate flexibility.**<sup>41</sup> Exchange rate targets often accompanied the transition process for many years (e.g., Armenia, Uruguay, and Mexico). This is especially true for highly dollarized economies. During the transition process, the exchange rate (and to a lesser extent monetary targets) was transformed from an intermediate target and anchor to an important transmission variable and instrument. At the initial stages of the transition, a number of EM economies adopted preannounced crawling pegs to strike a balance between various objectives.

**123. All countries experiencing an exchange rate or balance of payments crisis typically chose inflation as the alternative target soon after the crisis, following monetary targets in the meantime.** This has been the case in Central and Eastern European EMs, but also in several AMs, as they adopted IT soon after the collapse of their fixed exchange rate arrangement, (e.g., UK or Spain). The choice of inflation as the new intermediate target in these cases was mostly due to the absence of alternatives rather than a conviction that this was the best possible arrangement. A direct focus on inflation seemed the only viable alternative to quickly establish credibility (e.g., Turkey and the Czech Republic).<sup>42</sup>

### Conditions to help smooth the transitions

**124. Several theoretical and empirical studies identify important conditions for the independent monetary policy to successfully reach its price stabilization objective.** Most literature studying conditions facilitating a transition towards more effective monetary policy

<sup>40</sup> The central bank of Colombia would construct a 'reference line' of M1 on the basis of inflation targets and lags in the monetary transmission. In principle, significant deviations of M1 from this line could trigger a shift in the policy stance (i.e., policy interest rates) or should be explained to the public. It is interesting to compare the experiences of Colombia and Mexico. In Colombia, it was the stability of the inflation–money relationship that assisted the authorities in early stages of IT, whereas it was the failing of this relationship that spearheaded the transition to IT in Mexico in the aftermath of the peso crisis.

<sup>41</sup> See Otker-Robe and Vavra (2005) for an extensive discussion of selected EM experiences with moving to a floating exchange rate regime.

<sup>42</sup> However, sometimes it took a while. For instance, Uruguay continued with monetary targeting after the exchange rate crisis in late 1990s for the lack of capacities to target inflation before finally adopting inflation targets in 2005. Similarly, Thailand and Indonesia continued to use reserve money targets for many years after floating their currencies in the wake of the Asian crisis of 1997 (Fane (2005); Siregar and Goo (2009)).

frameworks examines the issue from the perspective of countries transitioning to some form of IT (Carare et al. (2002, 2003); Batini et al. (2005)). There are a number of different versions of conditions conducive to a smooth transition to IT. According to one classification (Batini et al. (2005)) these are:

- Institutional independence (full legal autonomy, lack of fiscal dominance, operational central bank independence, sustainable fiscal balance, etc.);
- Financial system health (good capitalization of banks, reasonable stock and bond market development, managed FX mismatches, etc.);
- Well-developed technical infrastructure (data availability, systematic forecast process, models for conditional forecasts); and
- Economic structure (low exchange rate pass-through, low level of dollarization, high trade openness, low sensitivity to commodity prices.

**125. Other classifications tend to emphasize less the exogenous processes, such as the financial system health and the economic structure, and sometimes bring in the initial macroeconomic balance as an additional consideration** (Carare et al. (2002)). However, many of these conditions are in fact characteristics of a well-functioning effective monetary policy regime. Hence, building these conditions is tantamount to building a more effective policy regime itself.

**126. The empirical literature overwhelmingly finds that no country transitioning to IT had all elements considered useful for a smooth transition fully in place prior to IT adoption** (Batini et al. (2005)). Predictably, IT AMs fared better in fulfilling the conditions at the start of their transition than IT EMs (with Canada probably the only one satisfying most of the conditions or coming close to it).

**127. Among the elements that were least developed among the future IT countries at the beginning of their transitions were:**

- Little or no forecasting capability and no forecasting model; EMs often had bad data.
- Most scored poorly on financial and banking system health, and some EMs were heavily dollarized. Policy transmission was often ineffective and dominated by the exchange rate channel (e.g., Peru, Serbia, and Moldova).
- Most scored poorly in terms of legal independence of the central bank and faced significant fiscal pressures.

**128. On the other hand, the elements that were in place at the outset of the transition in a majority of countries included:**<sup>43</sup> (i) an inflation target, relatively generously defined (price stability

<sup>43</sup> See Batini et al. (2005) and Otker-Robe and Vavra (2005).



mandate); (ii) central bank control over its own balance sheet (while some other forms of fiscal pressures may have been present); (iii) instrument independence and certain effectiveness of its implementation; and (iv) a functioning spot FX market and some financial system capacity to manage FX risk. The literature generally agrees that this is the critical set of conditions, which is useful for the process of strengthening monetary policy framework (Freedman and Otker-Robe (2010)).

### Establishing the Key Conditions

**129. In many EMs, the authorities did not consider the lack of preparations as a serious obstacle to their efforts to transition to a more effective monetary policy framework.** The IT country cases show that the conditions make the transition easier but are not a show stopper. Examples include the Czech Republic and Brazil.<sup>44</sup> This is despite the fact that the IMF was discouraging the EMs transitioning in the 1990s from adopting IT, viewing it an appropriate alternative only for mature AMs (Masson et al. (1998)).

**130. The countries abandoning exchange rate anchors gradually were generally better prepared, satisfying most of the conditions for a successful adoption of IT at the time of the exit.** In addition to the institutional independence and primacy of the inflation objective, they shared functioning FX markets, strong and stable financial system with a capacity to manage FX risks, a control over market interest rates, and coherent FX intervention policies. They were following a strategy of a gradual capital account liberalization.

**131. We observe that in all countries the building of the conditions was a long, mutually reinforcing process.** The literature finds that the improvements in the conditions achieved by the transitioning countries (notably in the technical infrastructure) significantly outpaced the speed of similar developments in non-transitioning countries (Batini and Laxton (2006)). This lends credence to the assertion that the resolve to transit has a positive effect on the speed of the adjustment (Freedman and Otker-Robe (2010)). Indeed, in many countries adopting an IT regime, the causality ran from the adoption of an IT regime to the satisfaction of the supporting conditions rather than the other way around (Mishkin and Schmidt-Hebbel (2007), Freedman and Otker-Robe (2010)).

**132. It was more the resolve and speed of implementing the conditions rather than their initial level that mattered for the performance of the new regimes.** The literature shows that the initial conditions do not explain much of the improvement in macroeconomic performance in terms

<sup>44</sup> For instance, Brazil and the Czech Republic introduced IT after short, intensive preparation periods (three and six months, respectively), having had in place only some of the most essential elements for its implementation. In Brazil, there was a need to further improve the institutional framework and fiscal policy, as well as to build modeling and forecasting capacity. The Czech Republic did not have a clear mandate to pursue price stability and gained a sufficient modeling and forecasting capacity several years after the IT adoption. On the other hand, Uruguay had a step-wise approach: monetary targeting was adopted after the crisis in the absence of many of the IT conditions and given the need to reestablish credibility quickly, while efforts to set up the institutional, technical, and policy environment conducive to IT were speeded up. See Otker-Robe and Vavra (2005).

of inflation and output growth and their variability under IT (see paragraphs 167–174 and Batini et al. (2005)). Nevertheless, the individual country cases show that the lack of some of the ingredients complicates the transition, especially for the countries looking for alternative anchors under market pressure and facing relatively low policy credibility. For instance, the cases of Mexico, Brazil and the Czech Republic illustrate well the risks and challenges of establishing credibility without most of the supporting elements in place. The recent experience of Moldova, hit by a crisis in the local banking sector on the top of the already severe impact of the Russian crisis, shows the importance of having a resilient financial system in place.

**133. Moreover, there is evidence that the performance of EM economies improved more under IT than that of AM economies despite satisfying fewer conditions initially** (Roger (2010); Freedman and Laxton (2009)). This could perhaps be explained by the greater commitment and speed with which these countries were implementing the conditions, thus quickly building policy credibility essential for good policy performance.<sup>45</sup>

### Sequencing of steps during the transition

**134. In some cases, the process was planned, arising from a conscious decision to transition to a different monetary anchor; elsewhere, they evolved from the previous regimes, sometimes under pressure.** Some countries started the process after a currency or general economic crisis (e.g., the Czech Republic, Brazil, Indonesia, Thailand, Mexico, and Uruguay). In other cases, individual steps were taken in a planned sequence (e.g., Poland, Israel, and Chile). In some, we see both the crisis and plan elements together, with the crisis acting as a catalyst of a planned process (e.g., Turkey).<sup>46</sup>

**135. Some elements of a new regime with an inflation objective evolved independently, while others were more sequenced.** For instance, the intention to steer (a loose form of targeting) market interest rates, rather than set volume based operational targets derived from intermediate money targets, emerged very early in many of these countries, irrespective of the regime (see Box 1). On the other hand, changing communication practices and increasing policy transparency took place in tandem with adopting new regimes and strengthening analytical frameworks.

<sup>45</sup> For instance, there is evidence that efforts to put in place the preconditions of IT and to strengthen markets and risk management systems contributed to the durability of exits in post-crisis countries. These efforts also helped limit the severity of the crises and achieve a relatively quick reinstatement of policy credibility. See Otker-Robe and Vavra (2005).

<sup>46</sup> See Freedman and Otker-Robe (2009) and Otker-Robe and Vavra (2005) for sequencing of capacity building efforts in a number of EM economies.

### **Box 1. Developing the Capacity to Control Money Market Benchmark Rates**

An effective system of monetary policy implementation consists of the capacity to control money market benchmark rates, which serve as an operational policy target, whose level is set at relatively infrequent policy decision making meetings (by Board or Monetary Policy Committee (MPC)).

In the early transitioning countries, the policy implementation frameworks would take a long time to develop (probably reflecting the search of best practices), while the countries transitioning in the 2000s (e.g., Serbia, Georgia and Moldova) were able to put in place an effective system very quickly, sometimes in a matter of months.

In terms of sequencing, it appears the early transitioning countries would go from targeting base money to free reserves to market interest rates. However, the supportive elements and the know-how of controlling market interest rates effectively took much longer to develop. Initially, the countries would steer the market rates by conducting volume-based operations with some kind of a corridor, often an indicative or one-sided one (the Czech Republic, Poland, and Brazil). The linking of the rates on main operations to the operational target levels decided by the Board usually took another year or two. Only at that point would the required reserves lose their important role as an instrument too. The corridor was typically the last to be finalized (Poland, Brazil)—especially tying the deposit facility rate to the policy rate took time, in part because it increased the potential costs of sterilization policies, as did the decision to reimburse the required reserves.

The implementation of the interest rate focused operational framework often took place under pegs and monetary targeting without a regime transition in mind (Israel, the Czech Republic, and Brazil). The intention to steer market interest rates, rather than set volume based operational targets derived from intermediate money targets, emerged very early in many of these countries, irrespective of the regime. The examples include Chile, Brazil, Colombia, Israel, the Czech Republic, Poland, and Indonesia during periods in which they were following various combinations of intermediate targets, including the exchange rate, monetary aggregates, and inflation.

This suggests having interest rates as operational targets was considered state-of-the-art and compatible with various intermediate targets early on. Indeed, there is evidence that having control over market interest rates substantially facilitated the transition from a fix to float (e.g., the Czech Republic, Poland, Israel, and Brazil versus Uruguay). However, some countries (e.g., Peru and Mexico) with a relatively high initial level of inflation found the use of volume operation targets more useful than interest rates, both for practical as well as communication reasons. For instance, the high level and variability of expected inflation in Peru in the 1990s did not favor the use of an interest rate operational target: changes in inflation expectations would have created significant noise in signaling the monetary policy stance. In the Czech Republic, on the other hand, the use of an interest rate as the operational target probably contributed to a downfall of the fixed exchange rate regime under an open capital account.

In some cases money and interest rate operational targets coexisted for a while, but interest rates were quickly taking precedence. Volume targets would be kept for legacy and legal reasons but also to overcome the uncertainties involved in forecasting the workings of an interest rate based transition mechanism. For instance, in Brazil, the operational money targets were set with the perspective of a

**Box 1. Developing the Capacity to Control Money Market Benchmark Rates (concluded)**

particular interest rate trajectory or movement. In Poland the operational decisions were also increasingly paying attention to a desired interest rate move.

Finally, there is evidence that a regime change (e.g., a fixed to float or IT adoption) obviated the change in the implementation framework. This is clear from the experiences of the countries adopting IT after 2000 (Serbia, Georgia, Moldova, and Ukraine), but a drive to finalize the operational changes was clearly precipitated by regime changes in Poland (orderly exit) and the Czech Republic (crisis driven exit) too. Peru adopted the interest rate as the operational target in the early 2000s in connection with adopting IT and having inflation under control. Mexico was one of the last IT countries to switch to interest rate-focused operations in 2008.

**136. The sequencing of the steps in building the elements of effective monetary policy was an important factor in the durability of the transition and the macroeconomic performance.**

Although establishing each element of effective monetary policy often took many years (see Boxes 2–4), in general the sequencing looked as follows:

- Basic elements of policy and instrument independence exist, and the central bank has control of its balance sheet. Although the fiscal position may be unsustainable and other forms of fiscal pressure exist, the central bank has enough autonomy to decide which instruments to use and authority to promote financial market development.
- Some elements of interest rate-focused operations appear together with allowing for some exchange rate flexibility. Many countries understood quite early in the transition the benefits of interest rate based policy (see Box 1) and the necessity to allow for some exchange rate flexibility. The latter would often be triggered by operational practicalities but soon would become a necessity given the desire to implement policy through changes in interest rates.
- Efforts to stimulate the development of financial markets (domestic debt market, FX spot and forward markets) begin, sometimes in step with financial account liberalization. Allowing for some exchange rate volatility would soon trigger the process of building FX markets and stimulate the development of FX risk management capacities. The most important institutional element in this phase was the regular issuance of fungible government debt, without which the local currency yield curve could not develop, thus undermining the role of the interest rate transmission channel. The development of the FX derivative and Forward Rate Agreement (FRA) markets would also take place in some countries at this stage, putting pressure on the central bank to become more transparent about its policy course.<sup>47</sup>
- Exchange rate flexibility is gradually increased. Market pressure sometimes forces a fast exit, often in connection with liberalizing capital flows. The forces of the impossible trinity and

<sup>47</sup> Allowing foreign investors to participate in the development of the financial markets was an important positive element in these developments, as they served as conduits of good standards, added market liquidity, and provided transaction counter-parties in otherwise one-sided markets.

increased capital account liberalization increase the need for more exchange rate flexibility. In countries simultaneously following inflation and exchange rate targets, the conflicts between the two would require relaxing the exchange rate target. However, ideally the liberalization of the capital account would come in a well-planned sequence (Box 3). The countries that liberalized the capital markets too quickly (e.g., the Czech Rep in 1996 or Israel and Chile in the 1970s) would become hostage to the volatility of the external financial flows, often triggering financial crises and disorderly exits from pegs.

- Inflation as the alternative anchor is chosen, and first targets announced, often for the short-term and sometimes coexisting with the exchange rate anchor. Inflation as the alternative anchor starts appearing in this stage either out of a necessity after a crisis-driven exit from the peg or out of considering alternatives for the increasingly looser exchange rate anchor.
- A broad monetary policy independence and autonomy (including the role in the exchange rate regime) is established. The concepts of operational, financial, and personal independence of the central banks are established and legally sanctioned. The central banks sometimes get target autonomy (or share it with the government) and authority over the exchange rate regime.<sup>48</sup>
- Analytical capacities and communication strategy develop. After inflation is chosen as the alternative anchor, the central banks work on putting in place the necessary institutional elements, including more central bank independence, transparency and accountability, and macroeconomic forecasting capacities. The latter would be a practical prerequisite for establishing inflation forecasts as intermediate targets but often take several years to develop. A general communication campaign explaining the mission of the new regime and harnessing public support starts.
- Medium-term inflation targets are announced and exchange rate anchor is finally abandoned. However, the exchange rate often continues to play a more important role than a mere instrument or a transmission variable, leading to the development of a specific FX intervention strategy.

**137. However, the evidence also shows that this particular sequencing was not ideal.** In particular, earlier investments in communication and analytical capacities could have contributed to a smoother transition and faster build-up of credibility. For instance, the absence of the analytical capacities led to short policy horizons that increased macroeconomic volatility, and undermined the credibility of the process (See Box 2). In several cases, having adequate communication tools would have helped achieve a general public consensus on the transition process earlier. In that respect it also appears that the choice of inflation as the alternative anchor could have been made faster.<sup>49</sup>

<sup>48</sup> The central banks of Mexico and the Czech Republic (for a certain period) have enjoyed full target autonomy; otherwise, the cases of central bank's full target autonomy are relatively rare.

<sup>49</sup> Colombia's experience shows in particular the importance of announcing the target as part of the new price stability framework. The failure to do so contributed to the extremely low credibility of the new anchor and framework (Gomez et al. (2002)).

Finally, the evidence also reasons against a premature financial account liberalization, which should in general follow (rather than precipitate) greater exchange rate flexibility (Box 3).

### **Box 2. Building Analytical Capacities**

Another important element in the transition is building adequate forecasting and analytical capacities to support forward-looking monetary policy. Although this is a relatively self-contained area, which can be implemented relatively independently of the other elements, it was often one of the last elements, especially in the countries starting the transition in the 1990s.

Analytical capacity was found to be an important factor affecting the smoothness of the transition to IT and a flexible exchange rate. For instance, with IT adopted in a period of uncertainty and weak currency in Brazil and with no adequate forecasting capacity, restoring and maintaining credibility had to be supported by even tighter financial policies at a period that was associated with a crisis-driven slow-down. In the Czech Republic, the lack of adequate forecasting and analysis capacity complicated the decisions about the appropriate degree of policy tightening needed for the inflation target, contributing to an initial undershooting of the targets combined with a protracted recession; the latter raised questions about the central bank's independence in the absence of public support for the new regime. In Colombia the lack of forecasting capacity in the disinflating environment led to a continued use of the monetary base as an additional reference line for gauging the policy stance.

IMF technical assistance and bilateral twinning projects among central banks were important resources in addressing this gap in many transitioning economies. For instance, New Zealand worked with the experts from the Bank of Canada in building their first forecasting models. The Czech Republic, Turkey, Colombia, Serbia, and Peru are among those benefitting from the IMF technical assistance.

An important lesson from these projects is that the development of sustainable and effective forecasting capacities often involves reorganizing the economics departments of central banks, putting in place onerous forecasting processes with a substantial involvement of decision makers, and implementing specific human resource policies attracting and maintaining specific talents usually not associated with central banking.

### Box 3. Sequencing with Capital Account Liberalization

In the countries that exited the peg under market pressure, capital account transactions had been mostly liberalized before the exits, highlighting the risks of liberalization before moving to flexibility. In Uruguay, the capital account had been open almost 30 years prior to the exit. In Brazil, the transition to floating took place in the context of a relatively open capital account; while some direct and market-based controls were imposed on short-term inflows during 1993–96, they were not very effective in reducing the inflows, or in affecting their composition, and were removed by the time of the float. In the Czech Republic, inflows (including FDI, portfolio, securities, and credit inflows) had been liberalized earlier and more extensively than outflows, with significant capital inflows leading to the adoption of a wider band shortly before the float. (As in Poland, the liberalization in the Czech Republic in the early 1990s was part of both the overall economic transition process as well as the preparations for OECD membership.)

In the case of gradual transitions, capital account liberalization was better coordinated with greater exchange rate flexibility. Long-term inflows were liberalized usually before short-term ones, and liberalization of the latter took place in tandem with a gradual rise in flexibility. Short-term inflows, when liberalized before outflows, created appreciation pressures, complicating macroeconomic management. Introducing some exchange rate flexibility helped absorb the impact of the inflows and focus monetary policy on achieving inflation goals, while also discouraging speculative inflows that are more easily reversed. In Poland, for example, most inflow controls (first long-term, then mostly short-term) had been liberalized before the crawling band, which was widened in steps in response to persistent inflows. In Israel, inflows were liberalized before outflows, and long-term inflows before short-term ones; the latter were liberalized shortly after moving to the crawling band. In Chile, the liberalization moved in parallel with exchange rate flexibility and involved the use of market-based inflow controls to reduce their short-term component.<sup>50</sup>

Some countries made an effort to eliminate or reduce the asymmetries in the openness of the capital account. For example, in Chile, Israel, and Poland, the authorities started liberalizing some outflow transactions that could help reduce the appreciation pressure generated by heavy inflows. Full liberalization of the capital account followed the float in all three countries. Importantly, in these countries, the controls on forward and other derivative transactions were liberalized gradually before the full float, facilitating risk management, hedging, and market development, all essential for the smooth functioning of a floating regime. In some cases (e.g., Israel), speculation in the FX market gradually became a stabilizing force as different sectors were able to operate freely.

<sup>50</sup> These controls were effectively lifted shortly before the float but were eliminated formally much later. Such controls were also considered (and were technically available) in the Czech Republic, Israel, and Poland but were not adopted to avoid the risk of undermining the credibility of the liberalization strategies.

**138. The central banks played a vital role in initiating, spearheading, and managing the transition.** The central banks would initiate the dialogue with the governments, take an active approach in changing the legal environment, work with opinion groups, and lead inter-agency task forces coordinating the steps in individual areas. They would also play a very important role in financial market development by managing liberalization, promoting good standards and codes of conduct as well as helping to establish the market's technical and legal infrastructure. In later stages they would enact regulatory measures promoting the development of the local currency markets and instruments and reducing dollarization (Serbia, Georgia, Turkey, Peru, Russia, and Moldova).<sup>51</sup> In several countries, the central banks were the major force behind regular T-bill issuance at benchmark maturities and sufficient volumes to facilitate market development (Macedonia and Thailand).

### **Common Challenges (I): Communication and Reaching Consensus**

**139. In general, the process of strengthening monetary frameworks was the initiative of the central banks, which were the drivers of adopting inflation targets and flexible exchange rates.** Although this process inevitably involved reaching a public consensus at some point, in many cases the central banks started targeting inflation unilaterally. For instance, the Czech Republic adopted IT in late 1997 without reaching a general consensus and explicit government consent. In Serbia, a light version of IT also appeared without government consultation in 2006. This in part reflected the difficulties in communication between the central bank and the government, the need to move fast in establishing credibility through a new anchor, and the underestimation of the importance of a public consensus about the new strategy.<sup>52</sup>

**140. Achieving public consensus became an important factor in establishing the credibility and hence durability of the transition process.** For instance, in New Zealand the initial approach to target inflation through the exchange rate backfired, as financial markets and central bank watchers came to doubt the long-term viability of the regime, which brought about high volatility of the exchange rate and other instruments, increasing long-term premiums and reducing the effectiveness of monetary transmission (Mishkin and Posen (1997)). In the UK, the financial markets initially put a sizeable premium on the regime's credibility (Batini et al. (2005)) before they became convinced about the long-term viability (after formal granting of central bank independence). In the Czech Republic, the absence of consensus together with the undershooting of inflation targets in the early years seriously jeopardized central bank independence. In Georgia and Armenia, the concerns for financial stability in the highly dollarized environment with a strong exchange rate pass-through and poorly anchored expectations were putting significant pressure (also through

<sup>51</sup> See the discussion of the Serbian approach to de-dollarization in Chailloux et al. (2010).

<sup>52</sup> The central banks' initiatives often required a liberal approach in interpreting the legal framework. For instance, the central bank mandate was sometimes interpreted as 'internal' or price stability but codification came several years later (e.g., Norway and Czech Republic). In some cases, the definition of the exchange rate regime was the choice of the government, which the central banks sometimes ignored or watered down. A liberal legal interpretation was also commonplace when liberalizing financial markets. In some other countries however, legal restrictions and onerous legislative procedures seriously hindered the transition process.



lobby groups and trade organizations) to preserve some degree of exchange rate management, potentially undermining the credibility of the regime.

**141. The experiences underscore the need for having adequate communication strategies explaining the mission of the central bank and the new framework to the general public and specific opinion groups.** In addition to building public support for the new policy framework, the communication strategy has become a vital monetary policy instrument on its own. During the transition process the central banks began to realize the role of expectations in the policy transmission and started developing specific communication tools and tactics to affect expectations directly (Blinder et al. (2008)).

**142. Tailored communication would involve grooming different communication channels as well as trimming the messages to particular groups to gain their support for the policy strategy.** For instance, communicating to socially vulnerable populations would underscore the benefits of having lower and more stable inflation. Importers and industrial investors would be natural supporters in the environment of an appreciating currency, while labor unions could value more inflation predictability and lower exposure to boom-bust cycles. In countries with nationwide labor bargaining process (e.g., tri-partite agreements), the central banks would often become part of the process, helping to anchor wage growth and thus strengthening both policy transmission and credibility.

**143. A particular communication challenge in explaining the transition process and the new policy involved the issue of exchange rate volatility.** By nature, most opinion groups would understand the virtues of exchange rate stability but fail to see immediately the benefits of the alternatives. There does not seem to be a unique way of overcoming this challenge, especially in highly dollarized environments, but incessant repetition of the same messages, gradual building of credibility and broad-based campaigns promoting the use of the national currency (including in the primary education system) have been helpful.

**144. Launching such a broad communication strategy would also put extra pressure on good coordination of the many communication channels to achieve consistency and avoid over-communication.** It would often require more resources in the communication departments and streamlining their organizational underpinnings. Before the transition many banks featured just a press-service unit in the Governor's secretariat, and communication activities were scattered across different units. By the end, communication was concentrated in one department with a spokesperson directly subordinate to the Governor.

### **Common Challenges (II): Perceived Lack of Credibility**

**145. Most of the delays experienced during the transition were linked to a perceived lack of credibility of the new policy and anchor.** Turkey is an example in which the limited inflation forecasting track-record hindered the ability to hit the inflation target and the authorities were wary of the effects target misses may have on the nascent regime. In several cases, the initial inflation targets were missed by a wide margin, sometimes causing a public backlash over the central bank's

strategy (especially when linked to a recession, as in the Czech Republic in 1999) and vindicating a more cautious approach in other countries. In other cases, including the AMs, the fiscal situation was precarious, limiting the room for the monetary policy maneuvering and often causing overly high real interest rates and macroeconomic volatility (e.g., Mexico, Brazil, Turkey, Canada, United States). As a result of the perceived lack of credibility, many countries tended to over-prepare, sometimes waiting too long before they considered themselves well-prepared (e.g., Ukraine).

**146. The fear of undermining the nascent regimes also lead to focusing on narrower inflation indices, ignoring volatile components of inflation such as food and regulated prices.**

At the same time, the central banks would devise an elaborate list of ‘escape clauses’ exonerating them from meeting inflation objectives under specific ex-ante (or ex-post) circumstances. The communication challenges involved were immense however, and both strategies eventually backfired. Ignoring volatile food items may have resulted in better forecast accuracy (e.g., the Czech Republic), but hardly endeared the regime to the population, whose consensus was important for restoring credibility. The system of escape clauses obfuscated the workings of the regime, which should have been built on transparency. As such, most countries gradually switched to headline inflation and abandoned escape clauses in the 2000s.

**147. For credibility reasons, the central banks would initially refrain from using long-term inflation targets before realizing the importance this has for anchoring expectations.**

Most EMs would start with short-term inflation targets, sometimes revised every year (Indonesia, Ghana and Serbia). Some relatively established IT countries would even revise their medium-term targets upwards in an effort to keep credibility in the face of durable shocks (Turkey and Brazil). However, these practices are generally not considered credibility-enhancing, and most countries would gradually converge to relatively constant levels of medium-term inflation targets (Schmidt-Hebbel and Werner (2002)).

**148. The fear of insufficient credibility was especially acute in countries that had suffered a currency crisis forcing them off their pegs.**

The sharp exchange rate depreciation, the absence of an inflation anchor, and the memories of high inflation periods fueled fears of a return to hyperinflation. Some responded by hastening the adoption of a new regime (Brazil), while others by returning (at least temporarily) to the shelter of a monetary or exchange rate intermediate target (e.g., Mexico and the Czech Republic for a short period, while Uruguay for many years).

**149. The experience of Latin American economies during the financial crisis is instructive in how a more credible monetary policy based on flexible inflation targets and exchange rates helped engineer a durable policy easing and expansion, significantly helping the economies to overcome the crisis.**

Previous external crises in the region were usually accompanied by muted and ambivalent monetary policy reactions and often by policy tightening for fear of currency depreciation. The rigidities in the exchange rate regimes provided implicit guarantees to building up mismatched FX positions in the private sector, in turn aggravating the fear of float. By contrast, during the latest financial crisis, Latin American economies were able to cut interest rates to historic lows for extended periods and large exchange rate depreciation helped fight external shocks without engineering bouts of exchange rate speculation as in the past (De Gregorio (2013)). This was

a product of strengthening the pillars of effective monetary policy in recent decades, in particular the focus on price stability, flexible exchange rates, and building more resilient financial markets with a capacity to hedge FX exposures. These policies, backed by strong FX reserve buffers, became credible tools by the time the crisis struck.

### **Common Challenges (III): Ineffective Policy Transmission**

**150. An ineffective policy transmission (factual or perceived), dominated by the exchange rate channel, in the environment of underdeveloped and dollarized financial markets and a significant extent of price regulation would exacerbate the credibility problems, especially in EMs.** Policy transmission was often dominated by the exchange rate channel (also in some AMs such as New Zealand). Indeed, the exchange rate pass-through to inflation and sometimes to output (via exports) was very strong in the initial transition stages in most (and especially in small, open) economies. The absence of domestic financial markets limited the use of the interest rate policy. Financial stability issues of unhedged FX positions of private and public sector balance sheets advised caution vis-à-vis abrupt exchange rate changes.<sup>53</sup>

**151. However, a gradual build-up of the pillars of modern monetary policy was found to rapidly change the transmission process.** Indeed, according to many studies the exchange rate pass-through has declined substantially in a vast majority of IT countries over time (Baquero et al. (2003); Coulibaly and Kempf (2010)). This was a result of a strengthened policy framework with more systematic and predictable policies as well as of efforts to build stronger domestic financial markets and reduce dollarization (Chailloux et al. (2010)).

**152. Strengthening policy transparency through external communication has also been instrumental in overcoming the issues with credibility and policy transmission.** Efforts to increase accountability and transparency through regular communication events, such as Inflation Reports and press events, became a ubiquitous part of the monetary policy toolkit, gradually strengthening the credibility of new regimes. These efforts were guided by the objective of improving predictability of the key policy rate as the benchmark rate in the local money market. The central banks working on policy transparency learned over time that admitting to their mistakes could foster accountability and improve the credibility of their policy strategies. At the end of the day, it mattered more that the markets could well understand how the central bank would behave under particular circumstances and when it realizes its mistake.

<sup>53</sup> For instance, in Hungary between 2008 and 2013 around two-thirds of household loans were denominated in Swiss francs and FX loans were widespread among small and medium enterprises (SMEs). Similar concerns were constraining the transition process and compromising monetary policy maneuvering in many other economies in Eastern Europe and Latin America.

**153. The key elements of this communication approach involved:<sup>54</sup>**

- communicating that inflation forecast always goes to target eventually but with uncertainty, which does not explode over time;
- communicating (verbally or explicitly) the expected future trajectory of the key policy rate;
- holding regular (quarterly) meetings with financial market analysts;
- strengthening the role of the inflation report as the main communication vehicle and making it more forward-looking; and
- establishing a firm cycle of communication events following each policy decision making meeting according to a pre-announced calendar (such as decision press release, press-conference, minutes, Inflation Report, events with specific audiences, and journal articles).

**154. If successful, such communication cycles and events would help make policy predictable by communicating policy preferences and future policy actions - giving a fair idea of the policy reaction function.** At the same time, the communication initiatives were instrumental in receiving useful feedback and helping improve the analytical apparatus.

**Common Challenges (IV): Fiscal Dominance**

**155. Gaining de jure and de facto control over its own balance sheet was one of the most important preconditions for the transition process to start (Freedman and Otker-Robe (2010)).** However, even with control over the balance sheet, the room for effective monetary policy in macroeconomic stabilization remained limited as long as it was constrained by market fears about fiscal sustainability, external balance or both (e.g., Turkey, Brazil, and Mexico).

**156. The fears of fiscal costs induced by monetary stabilization gave rise to various premiums, which limited the effectiveness of monetary policy actions.** For instance, an increase in interest rates in response to an inflation shock would provoke an increase in the currency premium for fear of effects on fiscal sustainability (e.g., Ghana and Serbia). Likewise, an effort to stimulate economy by cutting rates may backfire when the external balance is hit by a rapid capital outflow, as seen in Latin American external crises in the past.

**157. Fearing such outcomes, the monetary authority's reaction in many cases would have been muted.** The central bank in Mexico for instance, made considerable efforts to assess and quantify the costs associated with the financial and debtor support programs in 1995 and to convince the markets about sustainability of public finances (Schmidt-Hebbel and Werner (2002); Ramos-Francia and Garcia (2005)). Even the experience of AMs, such as Canada in the early 1990s or the US in the early 1980s shows how real interest rates were pushed up by a lack of support of fiscal policy to disinflation (Freedman and Otker-Robe (2010)).

<sup>54</sup> See Blinder et al. (2008) for a discussion of the theory and practice of modern central bank communication.

**158. Such considerations sometimes gave credence to arguments that, in addition to eliminating fiscal dominance, a country should have a sound fiscal position before the start of a process of implementing inflation targets** (Carare et al. (2002); Masson et al. (1998)). In fact, the evidence from AMs well as some EMs shows that adopting more effective monetary policy preceded structural improvements in fiscal policies or went hand-in-hand (Tapsoba (2010)). Interestingly, Batini et al. (2005) examining a sample of 13 EMs, find the fiscal position before IT adoption or the absence of fiscal improvement after the adoption does not affect the regime's ability to deliver low and stable inflation.<sup>55</sup>

### **Common Challenges (V): Exchange Rate Flexibility**

**159. For countries gradually abandoning the exchange rate anchor, the simultaneous pursuit of multiple objectives, especially the exchange rate and inflation, was a major challenge** (see Box 4). During the transition process almost all EMs experienced periods of two explicit intermediate targets: inflation and the exchange rate. While such a situation was relatively manageable under closed capital accounts and in a slow growth environment, rapid capital flows tested the consistency of the regime soon after the local financial markets had been liberalized and more integrated into the world financial markets.

**160. The experiences of many countries show that it is important to distinguish between the exchange rate as an additional intermediate target (in addition to inflation forecast) and as an instrument of achieving an inflation target (and/or other objectives).** While the former practice was not sustainable in the long-term and was difficult to manage, the latter continues to be practiced by many EMs and AMs, having gained a special importance in the wake of the financial crisis. Having two intermediate targets would eventually lead to conflicts between these two targets. Countries that speedily sought to resolve these conflicts in favor of inflation (such as Israel and Poland) would see a gradual abandoning of explicit exchange rate targets in a relatively smooth transition process. Countries in which the priority was not be clear or fluctuated over time (such as Hungary or Chile in the early transition period) would face difficulties in establishing the regime's credibility.

**161. Even when the exchange rate anchor was abandoned, many countries struggled in finding the right role for the exchange rate during and after the transition.** The exchange rate stability continued to receive special attention, much more than just a transmission variable. Many countries continued to intervene in the markets frequently; others labored over complicated intervention strategies in an effort to make their involvement in the FX market transparent (Israel, Mexico, Colombia). In many cases, these strategies would have been misused in the communication to advocate the approach on a different pretext. For instance, the central bank would refer to

<sup>55</sup> The experiences of Israel and Colombia are particularly interesting in this respect, as there seems to have been a positive feedback loop from the benefits of a forward-looking monetary regime to fiscal discipline. The IT regime in Israel facilitated the development and lengthening of the yield curve, which in turn paved way for the development of a local currency mortgage market. The mortgage market, which affected the majority of the population, was sensitive to fiscal policy, which became more disciplined under the pressure.

'leaning against the wind' interventions or reserve accumulation interventions even in the cases when the main (or at least a significant part of the) motivation was to affect a monetary policy stance. This would occasionally contribute to the markets' perception that the exchange rate continues as an implicit target variable, seriously compromising the regime's credibility. The countries affected included Turkey (before full-fledged IT was adopted in 2006), Russia, Georgia, and Serbia among others.

**162. Out of this tension, two strategies emerged. Countries like the Czech Republic, Israel, and Poland sought credibility through embracing tough principles of full-fledged IT and a fully flexible exchange rate, limiting discretion in acting in the FX markets.** This would result in long non-intervention periods and no doubt contributed significantly to credibly replacing the exchange rate anchor with inflation.

**163. A different strategy of dealing with the exchange rate dilemma, on the other hand, encouraged discretion in acting in FX markets.** In Serbia and Georgia, for instance, discretion in FX interventions was considered a way of dealing with practical short-term issues, which could have otherwise thwarted modernization efforts or led to a collapse of the financial system in highly dollarized economies (e.g., Peru). This eclectic approach saw the establishment of various forms of 'light' IT regimes (Stone (2003)), not as a stepping stone to a full-fledged IT, but as a goal itself (Goldstein (2002), Freedman and Otker-Robe (2010)).

**164. Such an approach is typically characterized by having an explicit inflation target and FX interventions to smooth market movements, while letting the exchange rate adjust due to fundamentals without setting specific FX targets.** The interest rate policy is primarily used to target inflation, but on the margin, the exchange rate consideration is also important. The IT regime in Peru, for instance, involves active FX interventions to smooth exchange rate fluctuations and build international reserves, frequent use of reserve requirements to control the impact of capital flows, and an interest rate reaction function responding to expected exchange rate and inflation movements (Armas and Grippa (2005)).

**165. On the other hand, the exchange rate has recently staged a comeback as an instrument in the arsenal of relatively well-established, full-fledged IT central banks.** For instance, Poland<sup>56</sup> and Israel reactivated their interventions during and after the financial crisis as a supporting tool to interest rates in achieving the inflation target and restoring growth to the economy. So did Switzerland and the Czech Republic as a means of dealing with external shocks and the zero lower-bound constraint. However, in most cases such a step back took place only after the credibility of their regimes had firmly been established (also thanks to long non-intervention periods).

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<sup>56</sup> See Adam et al. (2013).

**166. While for many economies, the recent recourse to interventions has been communicated as temporary, many other countries subscribe to these practices as a long-term strategy.** For instance, Colombia works on the assumption that the interest and exchange rate instruments work through different transmission channels; thus, monetary policy can be more effective when combined.<sup>57</sup> Similarly, Israel applied a strategy using two instruments with two objectives for a while during 2008 and 2009 and then since 2013 (Box 4).

**167. These practices seem to differ from the long-standing ‘golden rule’ of using FX interventions in IT regimes, i.e., to use the interventions in the same direction and after the interest rate moves** (Holub (2004)). The main challenge in these practices is to communicate the difference between using the exchange rate as a target and an instrument and how to execute an exit from a durable exchange rate intervention program. The Czech Republic was relatively successful by making sure execution fulfilled all the elements of IT, while some other central banks (Switzerland and Israel) faced considerable difficulties, perhaps owing to communication inconsistencies and an unclear role for the interventions with respect to the price stability mandate.<sup>58</sup>

#### **Box 4. Experience of Israel with FX Interventions During 2008–2014**

Israel renewed FX interventions in March 2008 after more than a decade of pure floating. The experience illuminates the communication and implementation challenges that may be encountered by a relatively straightforward FX intervention program with a well-thought out exit strategy under changing external circumstances.

The Bank of Israel (BoI) began intervening in the FX market in the first half of 2008 for a number of reasons, which were difficult to communicate consistently for a long-period: (i) the temporary disorder of financial markets after the collapse of Bear Stearns; (ii) a long-term need to increase FX reserves; and (iii) strong appreciation pressures insensitive to interest rate cuts and threatening the inflation target as well as export competitiveness. The FX intervention program consisted of daily over-the-counter (OTC) purchases of US\$25 million executed in a price-taking fashion. The intervention program was communicated only in the context of reserve replenishment (the approximate target level of reserves was announced too), although in reality the macroeconomic environment also played a role.

<sup>57</sup> The external-internal disconnect of the economy may have facilitated the implementation of both instruments without facing significant economic policy trade-offs (Benes et al. (2014); Hamann et al. (2014)). The central bank has also been able to show its technical prowess and understanding of the economy in external communication, thus reducing the negative fall-out from the two-instrument strategy to the policy credibility.

<sup>58</sup> Switzerland’s extensive use of FX interventions during 2009–2011 to prevent appreciation in the context of the zero lower bound was not very effective, perhaps because it was never explained clearly as part of the monetary policy framework and appeared inconsistent with inflation forecasts at the time. On the other hand, the imposition of the exchange rate floor in 2011 was communicated clearly in terms of the price stability mandate and was at first much more effective. However, the surprise abandoning of the floor in 2015 and the ripples it caused in world financial markets underscores the challenges of abandoning a long-term FX intervention program.

#### Box 4. Experience of Israel with FX Interventions During 2008–2014 (concluded)

The first serious communication issues came after the daily volumes were increased to US\$100 million in the summer of 2008. Although the announced main reason was the reassessment of the optimal FX reserve level (also in relation to national security strategy), the BoI also referred to the “current market conditions and cumulative and rapid change in the exchange rate of the shekel,” which considerably confused the markets (Topf, 2015).

Further confusion arose from two interest rate hikes (later reversed) in late 2008 following a sudden increase in inflation while the intervention program was still underway; thus, both policies pulled in a different direction in terms of the monetary policy stance. Some communication pieces in the period signaled that the central bank was using interest rates in targeting inflation and FX interventions in helping the economy, thus tremendously complicating the understanding of the regime’s mechanisms and objectives. In addition, with the onset of the financial crisis, it was becoming clear that the intervention program also played a role of quantitative easing—an objective that was officially admitted in early 2009.

During the summer of 2009, the BoI embarked on a phased-out exit strategy, having assessed that the macroeconomic and financial situation was returning to normal. As one of the first major IT central banks, the BoI increased policy rates, and the exit from the FX intervention program consisted of the following steps: (i) continue the purchase program, but communicate that the BoI ‘will act in the foreign exchange market in the event of unusual movements in the exchange rate that are inconsistent with underlying economic conditions, or when conditions in the foreign exchange market are disorderly.’; and (ii) discontinue the daily FX intervention program, but keep on intervening discretely for some time. The supporting communication prepared the markets for the end of the FX reserve accumulation program, underlining the readiness of the BoI to step in, if necessary, but also the responsibility of the private sector to manage its FX risks.

However, renewed appreciation pressures led the BOI to resume discretionary interventions. Policy announcements made it clear that the exchange rate and export profitability were important factors in both interest rate decisions as well as decisions to intervene in the FX market.

In addition to the discretionary interventions based on market conditions, the BoI announced FX purchases under the so called “Gas Program” in 2013. Offshore gas discoveries began adding to the appreciation pressures on the shekel, leading the BoI to design a program offsetting some of the impact by purchasing foreign currency in an amount estimated to offset the amount of import substitution. Purchases under the program constituted half of the BOI’s interventions in 2013.

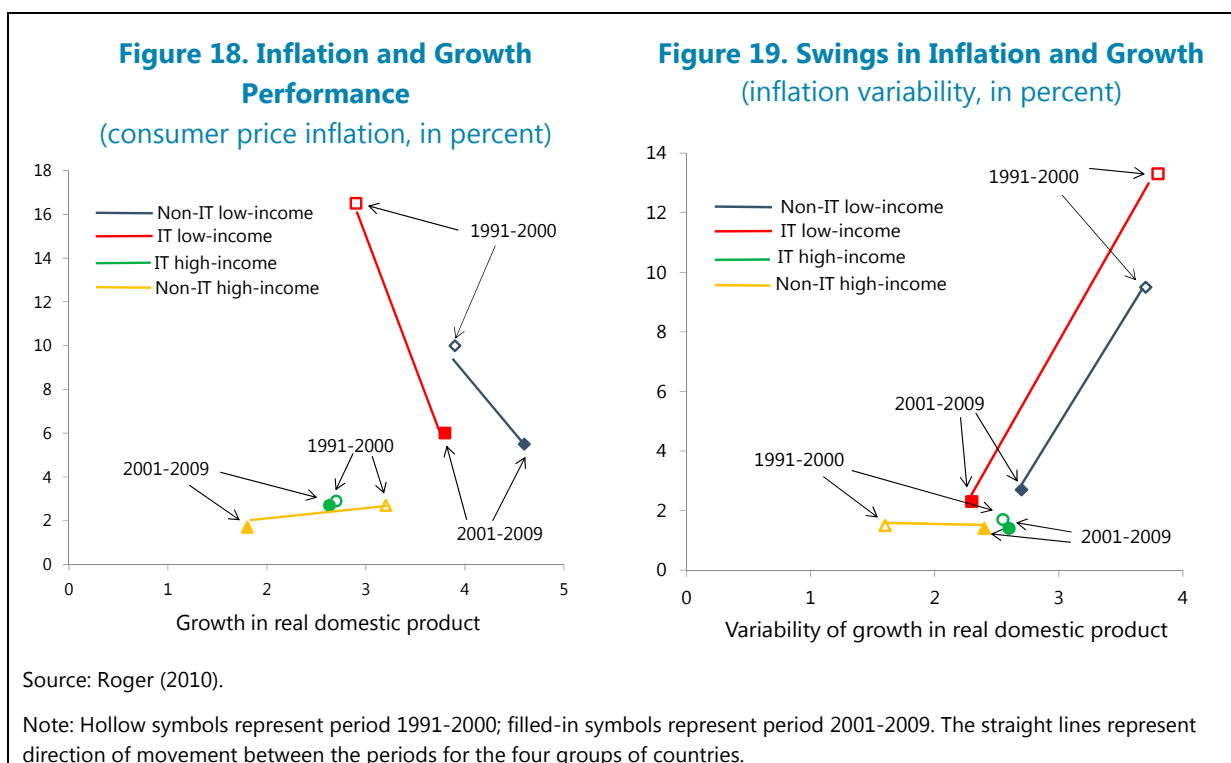
However, the Gas Program is also a communication challenge. It is not certain if the program will continue or at what pace should the shekel depreciate for other reasons, or if there are changes in gas production, consumption, or prices. Further uncertainty about the timing and amount of future purchases under the program comes from the decision to set up a Sovereign Wealth Fund, which should receive the royalties from gas production (and thus neutralize exchange rate effects).



**Performance of Countries with Modernized Monetary Frameworks**

**168. The general evidence about the performance of the countries with modernized monetary frameworks is very favorable across a number of criteria, especially among the EMs.**

Most of the formal evidence comes from examining the performance of IT countries that have generally implemented most or all of the elements associated with effective monetary policy. The evaluation criteria involve inflation and inflation expectations, output and inflation volatility, and specific monetary policy transmission indicators (Figures 18 and 19). The literature shows significant benefits accruing to EM economies that have successfully built the IT elements, both over a longer period of time as well as during select historical episodes (Roger (2010); Batini et al. (2005)). In AMs on the other hand, the effects are generally small and insignificant (Roger (2010); Ball and Sheridan (2005); Goncalves and Salles (2008)) suggesting that establishing effective monetary policy frameworks may have greater benefits in less developed countries.



**169. The long-term effects on reducing inflation, volatility of inflation, and output are significant and robust in most EMs.** Sometimes the benefits in terms of fast disinflation and reduced inflation volatility appeared soon after an inflation objective was established (e.g., Turkey, Thailand, and Indonesia to some extent); elsewhere, it came over longer periods. The IT regimes are especially credited for bringing about durable disinflation, sometimes on a spectacular scale (e.g., Turkey). For instance, Batini et al. (2005), surveying a sample of 13 EMs, finds IT is associated

with a 4.8 point reduction in average inflation compared to a 3.6 point reduction under alternative regimes.<sup>59</sup> Moreover, inflation expectations declined and so did the volatility of the exchange rate and the real interest rate. There is also evidence that inflation expectations in countries adopting IT elements are better anchored (Levin et al. (2004)).

**170. At the same time, this reduction in inflation does not appear to have come at the expense of output stabilization.** The IT-like countries were found to be better able to fight both high inflation and deflation, reacting earlier and being less prone to boom-bust cycles and financial crises (probably thanks to more flexible exchange rate regimes).<sup>60</sup>

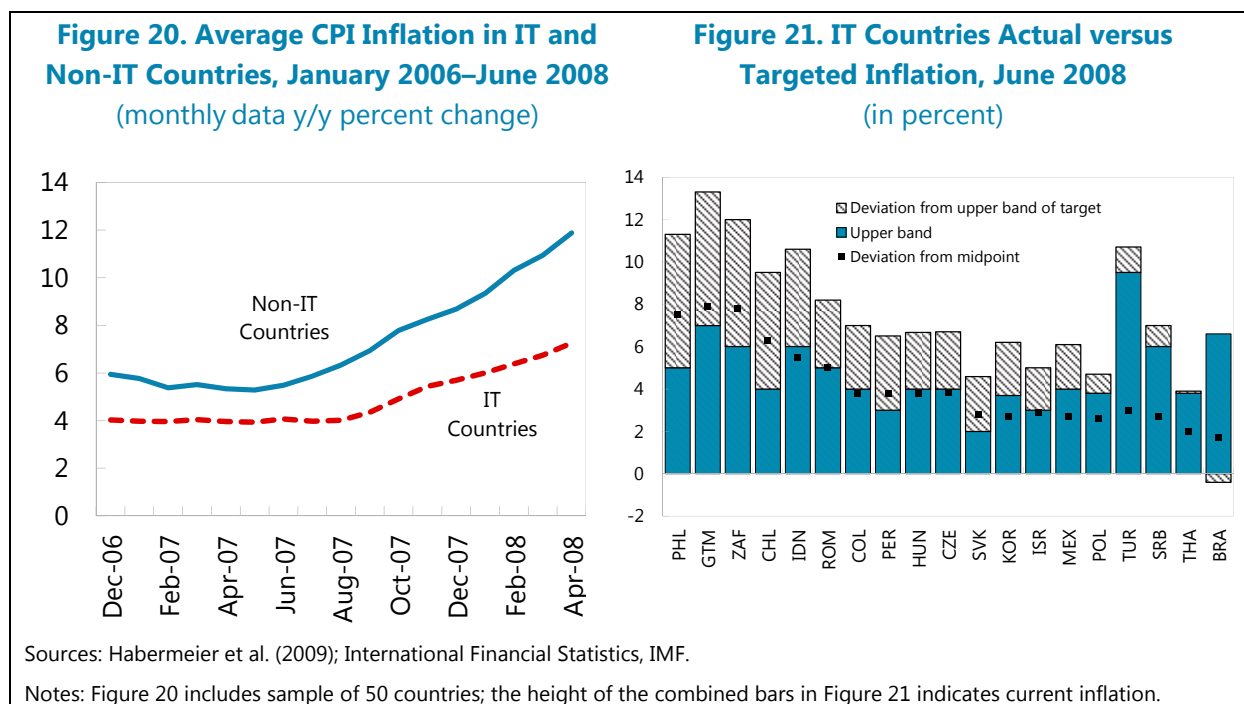
**171. Some attribute the difference between the empirically observed benefits of IT in EMs and AMs to the change in credibility that accompanied the transition.** While the AM central banks initially started off with relatively high credibility, much of the efforts of the EM central banks during the transition focused on establishing it. This could also perhaps explain why the initial extent of satisfying various conditions mattered little for the overall success of these regimes (Batini et al. (2005)).

### Food and Oil Price Shock

**172. With many EMs starting their transition in the late 1990s, the food and oil price shock of 2007/8 was the first significant common global shock affecting most of the new regimes symmetrically at the same time.** The evidence overwhelmingly shows that IT countries managed the shocks better than non-IT countries (Habermeier et al. (2009)). In general, they reacted faster and experienced lower increases in inflation, although targets were frequently missed (Figures 20 and 21). The IT central banks understood the nature of the shocks, which allowed them to react faster and more decisively, and also to enact policy easing before the shock completely subsided (e.g., the Czech Republic). Also, inflation expectations were found to be better anchored and more resilient to the shock among IT countries than non-IT countries. The interest rate response of IT countries was found to be more effective than administrative measures often applied by other countries.

<sup>59</sup> While some of this may be attributable to the great moderation period in general, there seems to be evidence that the disinflation process in IT-like EMs was independent of this. Parkin (2014) for instance, finds that central bank independence was an especially important element in reducing inflation and its variability.

<sup>60</sup> There is some evidence that this trade-off is also absent among IT low-income countries (Gemayel et al. (2011)).

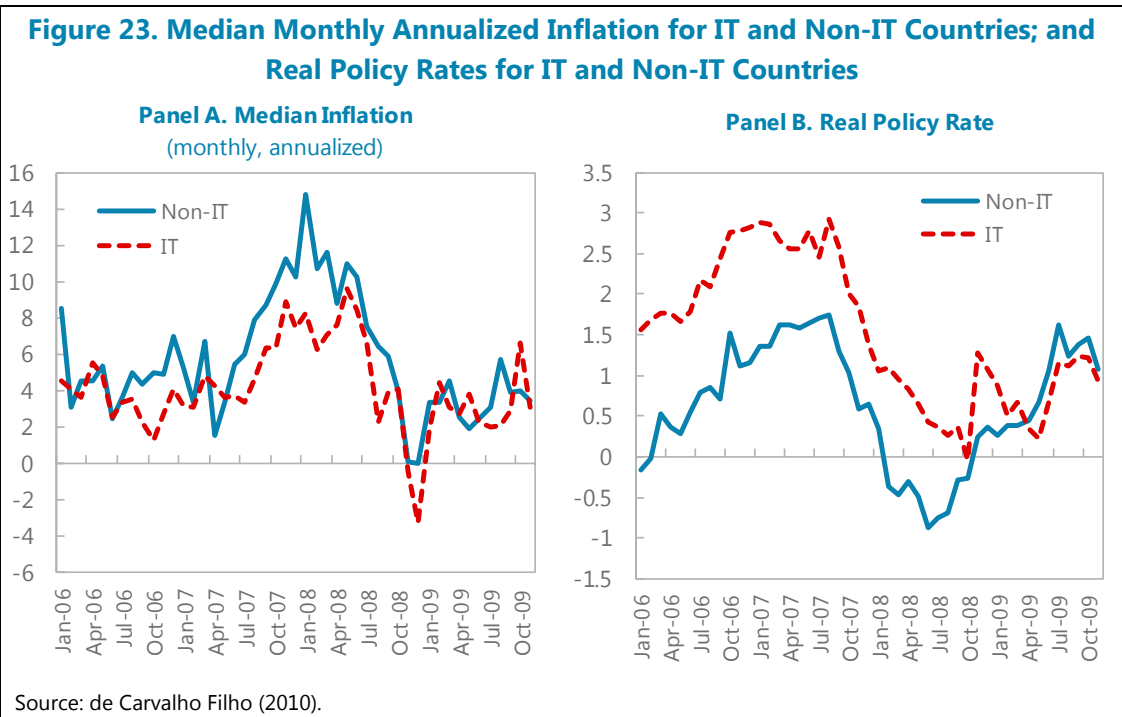
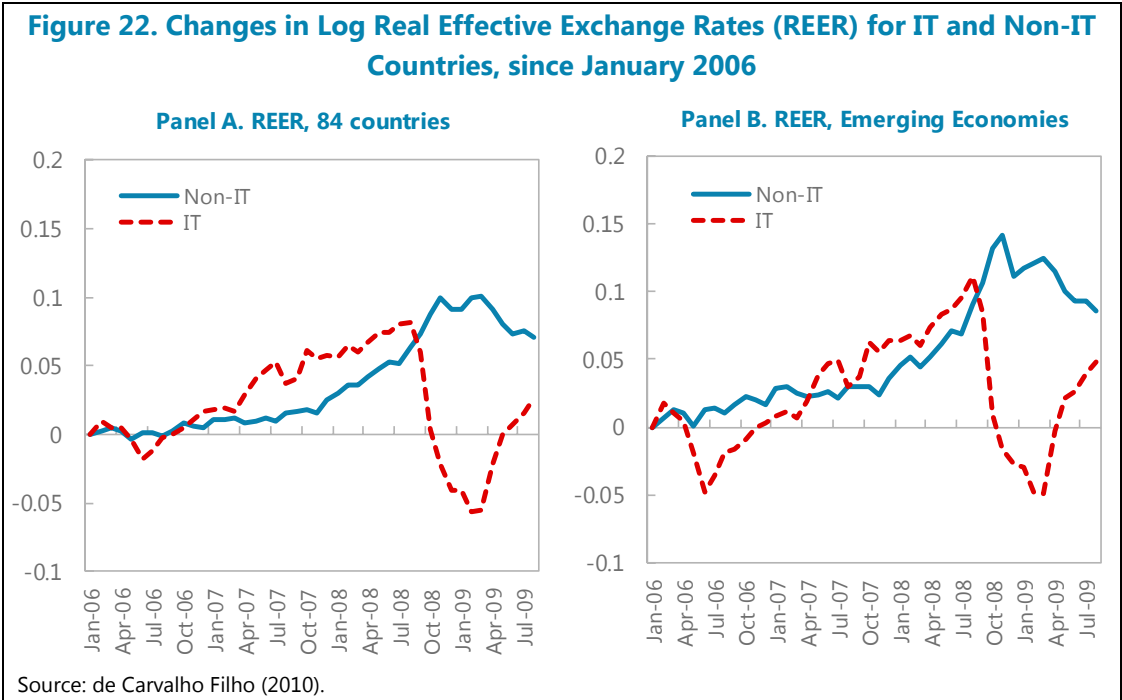


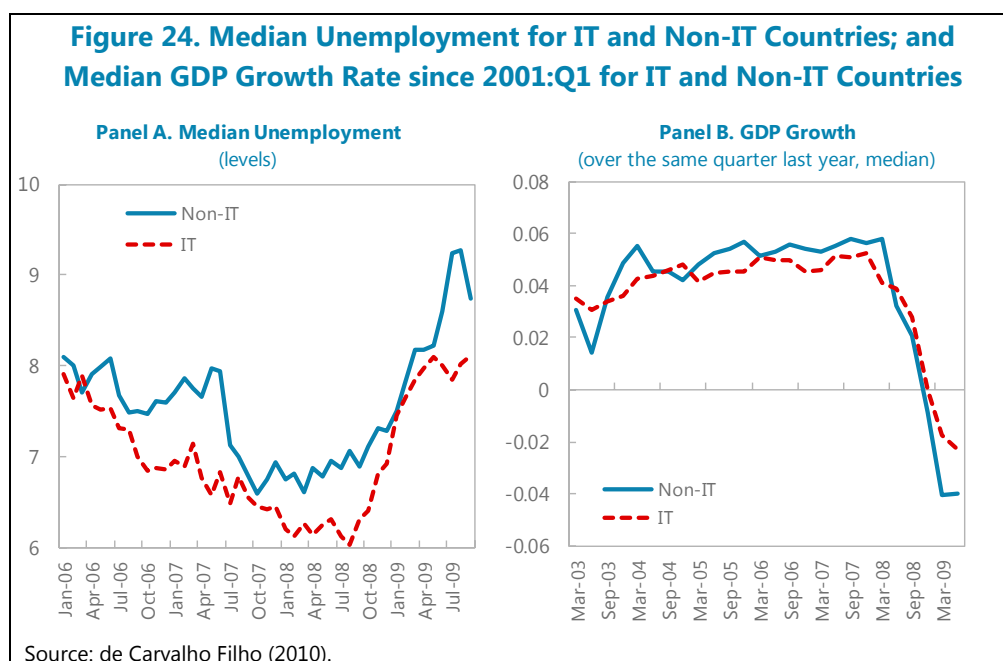
**173. Nevertheless, the shock posed a formidable communication challenge in many economies.** Several countries were not well prepared to sustain the pressures—especially those in which the credibility of the regime had not yet been entrenched at the time. As a result, some responded with a target revision (e.g., Turkey) or increased the use of FX interventions (e.g., Serbia), which could have been understood by the markets as a policy reversal, compromising the price stability objective by providing implicit exchange rate guarantees and derailing efforts to develop local financial markets.

### Financial Crisis

**174. The results from the financial crisis also point to the fact that the central banks embracing IT principles gained more flexibility in responding to shocks.** The IT and flexible exchange rate regimes were able to leverage their monetary policy instruments and the exchange rate to combat the crisis more effectively than others (Figures 22–24). In particular, IT countries were able to reduce interest rates more and achieve more effective real policy easing than non-IT countries; also, inflation expectations were better anchored (de Carvalho Filho (2010)). This was especially true of Latin American countries, where no significant adverse risk premium reactions occurred. The same was true of many IT Eastern European countries.

**175. The effects of monetary policy reactions on employment and growth are less convincing.** In part, this is perhaps because the IT countries generally tended to have higher rates in the previous boom cycle than non-IT countries and thus were better positioned to smooth the slump. Nevertheless, there appears to be some evidence that the rebound from the crisis was quicker among IT countries and especially so among IT EMs, suggesting that good monetary policy can be very effective even in relatively less-developed economies.





## Conclusion

**176. In the past three decades, many AM and EM economies have modernized their monetary policy frameworks.** This section studied their motivations, experiences, challenges, and factors contributing to success to draw common lessons useful for other countries opting to make their monetary frameworks more effective in the future.

**177. Most countries studied have adopted some form of IT, given unfavorable experiences with previous regimes based on money and the exchange rate, both as intermediate targets and in an operational sense.** These countries have chosen inflation as the nominal anchor with the exchange rate continuing to play an important role. Most of the pillars of effective monetary policy developed over time through determined efforts led by central banks, and the initial conditions did not matter for success. Countries have experienced numerous challenges with regards to communication, credibility, policy transmission, and fiscal dominance. Overcoming these challenges gave rise to new practices, which now form the state-of-the-art monetary policy.

**178. A general lesson for future modernizers emerges in that determination and resolve in building the pillars of effective policy is paramount for the success and credibility of the new framework.** The experiences also show that, if the transition is managed well and proceeds speedily, larger benefits accrue more quickly to relatively less advanced economies with fewer initial conditions for success.

## B. Monetary Policy in Selected sub-Saharan African Currency Unions<sup>61</sup>

**179. Maintaining a hard currency peg raises some policy issues that are distinct from those of other monetary regimes, but the set of principles<sup>62</sup> for effective monetary policy given in the main paper are nonetheless highly relevant in this context.** This section examines the applicability of several of those principles in analyzing the recent experiences of the two major African currency unions: the Economic and Monetary Community of Central Africa (CEMAC) and the West Africa Economic and Monetary Union (WAEMU).

### Central Bank Independence (Principle I)

**180. The institutional arrangements for these two currency unions were designed to help ensure that the monetary regime is insulated from political and fiscal pressures.** In particular, the parity of each currency against the euro can only be adjusted by a unanimous decision of all member countries. Each central bank keeps at least 50 percent of its foreign assets in an operations account at the French Treasury and maintains a foreign exchange cover of at least 20 percent for its sight liabilities. With those safeguards in place, the currency has only been devalued on one occasion in the past six decades. Nonetheless, as emphasized in recent Fund staff reports, there is room to strengthen the governance and transparency of the Bank of Central African States (BEAC) and the Central Bank of West African States (BCEAO), thereby enhancing the credibility and effectiveness of each of these central banks.<sup>63</sup>

**181. The sustainability of fiscal policies in member countries is crucial to the durability and credibility of a currency union; indeed, prudent fiscal policies are arguably even more important than in other monetary regimes.** In particular, given that the nominal exchange rate is fixed, fiscal policy adjustments can foster greater stability of the equilibrium real exchange rate and thereby mitigate pressures on domestic prices that would otherwise occur. Ideally, fiscal policy should be counter-cyclical, generating surpluses when the economy is booming and thereby building up a buffer of savings that can be drawn down at times when aggregate demand is less robust.

**182. Spreads between domestic and foreign nominal interest rates can provide some useful information about the credibility of a hard currency peg and the sustainability of fiscal policies.** For both CEMAC and WAEMU, interbank rates are presently about three percentage points higher than the level of interbank rates in the euro area, suggesting that investors may perceive a moderate but nontrivial risk that the peg could be modified or abandoned. These risk premiums

<sup>61</sup> Prepared by Andrew Levin.

<sup>62</sup> For a detailed discussion of the principles for effective monetary policy see the main IMF Policy Paper (2015), "Evolving Monetary Policy Frameworks in Low-income and Other Developing Countries".

<sup>63</sup> In particular, see the discussion of these issues in the latest Financial Sector Assessment Program (FSAP) for CEMAC.

may also reflect investors' perceptions of sovereign default risk in light of elevated concerns about the sustainability of member countries' fiscal policies, as noted in recent Fund staff reports. It should also be noted that these interest differentials can be influenced by imperfections in international capital mobility, because capital accounts have not been fully liberalized in either CEMAC or WAEMU.<sup>64</sup>

### **Fostering Price Stability (Principle II)**

**183. In the academic literature on monetary unions and hard** currency pegs, the implications for price stability have generally been analyzed in terms of criteria for an optimal currency area, namely, the strength of linkages between economies and the degree of symmetry of exogenous shocks. For low- and LLMICs however, it is also essential to consider how this type of monetary regime may contribute to price stability in a context where government institutions are relatively weak.

**184. Inflation outcomes in CEMAC and WAEMU have remained relatively low and stable** throughout the past few decades, especially by comparison with the high and volatile inflation rates that transpired in many other African countries. These outcomes demonstrate that membership in a currency union can be beneficial in fostering price stability even though the nominal exchange rate (rather than the consumer price index) serves as the nominal anchor of the monetary regime.

**185. As shown in Table 4, the mean inflation rate for each currency union was about 7 percent during 1991–1999, even though that time period encompassed the sharp devaluation in 1994.** The average level of inflation has been even lower since then, and in the most recent eight-year period (2007–2014), the mean was 3½ percent for CEMAC and 2½ percent for WAEMU. Moreover, the level of inflation volatility—as measured by the standard deviation of year-to-year changes—has been fairly moderate, especially given the extent to which the terms of trade for these economies tends to be quite sensitive to shifts in the global prices of energy and other commodities.

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<sup>64</sup> See IMF (2015c) and Khata (2014) for the staff's assessment of fiscal conditions in WAEMU AND CEMAC, respectively.

**Table 4. Inflation Outcomes in African Currency Unions and Other Economies 1991-2014**

	1991-1998			1999-2006			2007-2014		
	Mean	Volatility	Dispersion	Mean	Volatility	Dispersion	Mean	Volatility	Dispersion
<b>CEMAC</b>	7	12.7	11.4	2.7	3	9	3.5	2.9	8.7
<b>WAEMU</b>	7.1	10.5	8.6	2	2.3	4.8	2.6	3	4.3
<b>Guinea</b>	7.9	6.1	--	33	1.7	--	14.9	5.7	--
<b>Guinea-Bissau</b>	43	19.5	--	2	3.5	--	2.9	3.7	--
<b>Madagascar</b>	18.9	15.4	--	10.8	5.7	--	8.2	1.7	--
<b>Mauritius</b>	6.6	2.1	--	6.2	3	--	5.2	1.7	--

Source: IMF staff calculations.

Note: All statistics are computed using average annual growth rates of CPI inflation as published in the IMF's International Finance Statistics. The mean is the average inflation rate, and the volatility is the standard deviation of inflation over the specified time period; for each currency union, these statistics are computed as simple averages across the member countries. The dispersion within each currency union refers to the average range across members (i.e., max – min) over each time period.

**186. In assessing the degree of price stability in a currency union, it is also important to consider the extent to which inflation outcomes are broadly symmetric across member countries.** As indicated in Table 4 the dispersion of inflation outcomes—as measured by the sample average of the deviation between the highest and lowest country-specific inflation rates in each calendar year—has been substantial for WAEMU (roughly 4½ percent), and roughly twice as large for CEMAC (around 9 percent). For example, during 2010–2011 the CPI for Equatorial Guinea was rising at an annual average rate of about 7 percent while the CPI for Chad was falling at an annual average rate of about -3 percent. Such divergences bolster the rationale for both CEMAC and WAEMU to move ahead on structural reforms aimed at diversifying sources of export revenue and enhancing intra-union trade linkages, thereby boosting the synchronicity of real exchange rate movements and fostering greater symmetry in inflation outcomes.

**187. To shed further light on these issues, Table 4 also reports on inflation outcomes for four specific countries:** Guinea, Madagascar, and Mauritius each departed from the CFA Franc and established their own national currencies fairly soon after becoming independent from France, while Guinea-Bissau (a former Portuguese colony) discontinued its own national currency and joined WAEMU in 1997.<sup>65</sup> The inflation data for these four countries clearly show how price stability can be undermined unless the central bank is consistently insulated from political and fiscal pressures. For example, inflation in Guinea remained low and stable from 1994 through 2002 but then surged to double-digit levels—reaching a peak of more than 30 percent in 2004–05—and has only gradually subsided over the past decade. Guinea-Bissau experienced even higher inflation rates prior to joining WAEMU, whereas its inflation rate has dropped to an average level of about 2 to 3 percent since then. By contrast, Mauritius has been remarkably successful in sustaining low and stable

<sup>65</sup> Mayotte and Reunion are territories of France that switched from the CFA franc to the French franc in 1975-6. Mali departed from the CFA franc in 1962 and then readopted it in 1984. Equatorial Guinea—a former Spanish colony—discontinued its own national currency and adopted the CFA franc in 1985.



inflation rates since the early 1990s, and Madagascar has also made substantial progress in fostering price stability over recent years.

### **Operating Procedures (Principle V)**

**188. The experiences of CEMAC and WAEMU are fully consistent with the rationale for establishing an operating framework in which the policy stance is formulated and implemented in terms of a single operating target.** WAEMU has a relatively transparent corridor-style arrangement in which the BCEAO's discount and deposit facilities are reasonably effective in providing the ceiling and the floor for the overnight interbank rate. The operating procedures in CEMAC are much more complex and opaque, involving adjustments to four different refinancing instruments.<sup>66</sup> Thus, as recommended in recent Fund staff reports, the BEAC will need to take steps to streamline its policy instruments and enhance the transparency and robustness of its operating procedures.

**189. Recent developments also serve to highlight how the characteristics of the operating framework can have significant consequences for financial stability.** For example, the net reserve position of the banking system in WAEMU has shifted from surpluses to deficits over the past few years—that is, the commercial banks have become net borrowers from the central bank—and the marginal cost of overnight funds is now mainly determined by the central bank's lending rate.<sup>67</sup> As discussed in recent Fund staff reports, those developments have had adverse effects on the level of activity in the interbank market and appear to be hindering the development of money markets.

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<sup>66</sup> These four instruments are the bidding rate for BEAC tenders (TIAO), the rate on ad hoc liquidity injections (TIPP), the rate paid on banks' deposits at the BEAC (TISP), and the penalty rate charged on overdrafts of banks' accounts at the BEAC (TPB).

<sup>67</sup> Over this period, commercial banks have also been accumulating a growing stock of domestic government securities, suggesting that these developments may also be related to the worsening of fiscal balances noted above.

## C. Monetary Policy in Resource-rich Countries: Selected Case Studies<sup>68</sup>

### Nigeria

**190. The Central Bank of Nigeria (CBN) has multiple objectives, including ensuring monetary and price stability, promoting a sound financial system and maintaining external reserves to safeguard the value of the naira.**<sup>69</sup> Although the objectives are not ranked, the Monetary Policy Committee (MPC) frequently refers to a target range for inflation, most recently set at 6 to 9 percent. The CBN sets an annual benchmark for broad money growth, while in the past it also paid very close attention to the exchange rate, guiding the market by announcing a mid-point and a range for transactions through the CBN's official foreign exchange window. Policy is set bi-monthly by a 12-member MPC, comprising the Governor, four Deputy Governors, two Directors of the CBN Board, plus three other members appointed by the President and two by the Governor. Transparency around the decision making process is high; a communiqué is issued at the conclusion of each MPC meeting, which includes the votes cast and personal statements from each MPC member that support their position taken at the meeting. Inflation performance has been mixed over the last ten years, although it has been in a down trend over the last five years (Figure 25, Panel A).

**191. The CBN signals monetary policy primarily through the Monetary Policy Rate (MPR).** The CBN seeks to manage market rates close to the MPR, while stating that it manages reserve money to achieve its broad money growth benchmark. Broad money however appears not to carry the full weight of an intermediate target given the infrequency with which it is revised (annually) and the reference to it as a benchmark in CBN communications rather as a target. Further policy settings are generally not adjusted in line with broad money deviations from the benchmark, even where the deviations are significant.<sup>70</sup>

**192. The CBN uses a number of monetary policy instruments, but liquidity management is problematic given lumpy oil-related and fiscal flows.** Monthly transfers of oil funds from the Nigerian National Petroleum Corporation held at commercial banks to the CBN and consequent fiscal transfers to states and local authorities generate significant intra-month volatility in reserves balances and consequently interest rates. Standing facilities define an interest rate corridor ( $MPR \pm 200$  basis points) to contain the volatility, although on occasion, short-term rates can spike above the ceiling of the corridor owing to collateral constraints of banks that are short of liquidity (Figure 25, Panel B). In addition, the CBN uses a Cash Reserve Ratio (CRR), which was recently unified at a rate of 31 percent—previously 20 percent was applied to private sector deposits and 75 percent

<sup>68</sup> Prepared by Mika Saito and Mohammed Zaher.

<sup>69</sup> Central Bank of Nigeria Act 2007, [www.cenbank.org/OUT/PUBLICATIONS/BS/2007/CBNACT.PDF](http://www.cenbank.org/OUT/PUBLICATIONS/BS/2007/CBNACT.PDF).

<sup>70</sup> For example, the May 2015 MPC Communiqué states that M2 is growing annually at 5.39 percent, much below the 2015 benchmark of 15.24 percent, yet the tone of this communication is decidedly hawkish.

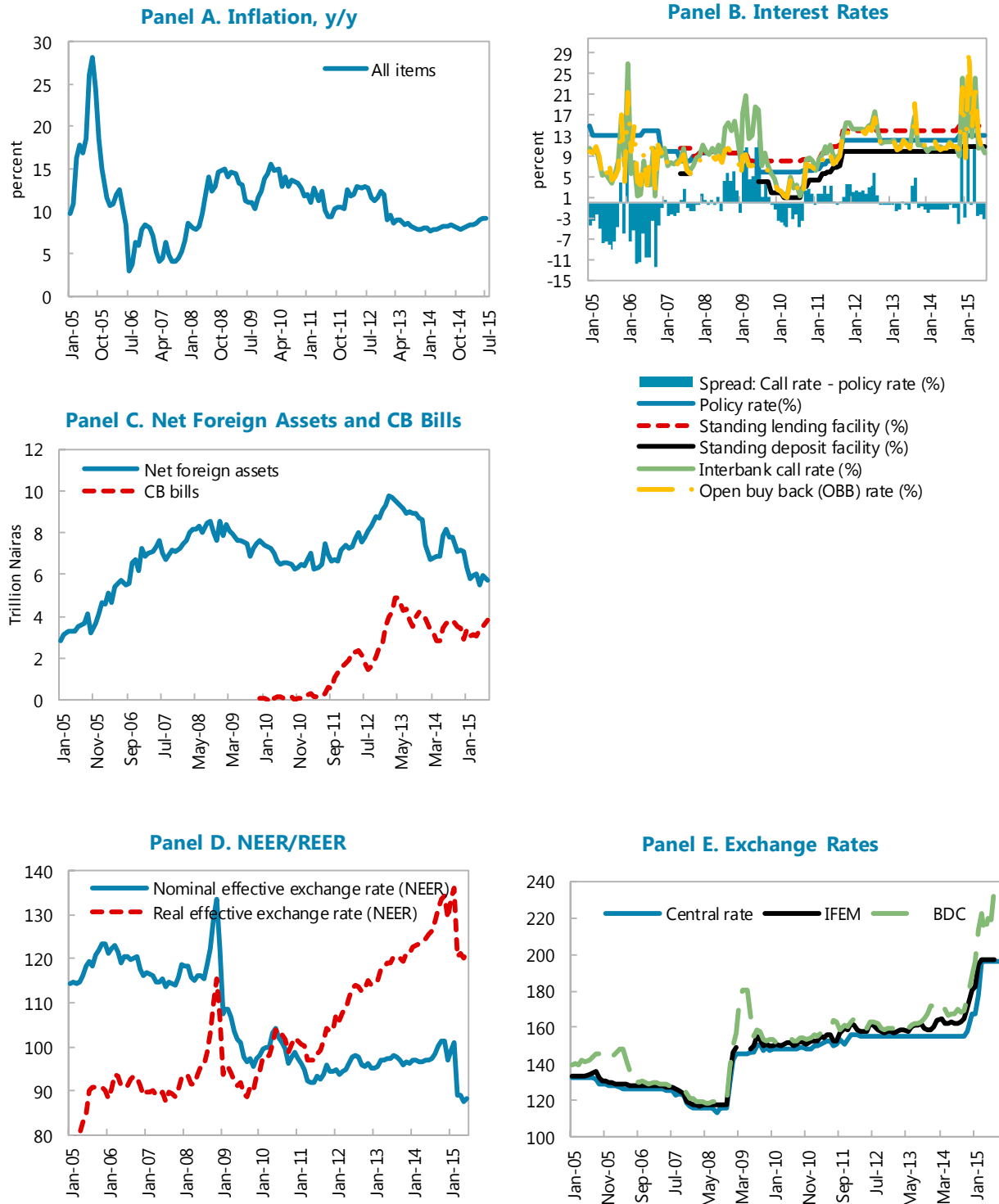
to public sector deposits. Open Market Operations (OMO) are also actively used, mainly through the outright sale of CBN bills.

**193. During a period of high oil receipts (2004–08) and capital inflows (2012) the CBN intervened heavily, tempering appreciation pressures and building net foreign assets.** Nigeria entered the 2008–09 global financial crisis with ample buffers: the balance on the Excess Crude Account (a stabilization fund established in 2004) was at US\$22 billion (8 percent of GDP), while gross international reserves (GIR) stood at US\$62 billion (equivalent to 16 months of imports). The rapid increase in net foreign assets (NFA) from 2011 could have led to monetary expansion and pressure on inflation, but the CBN stepped up its sales of securities to successfully manage the situation (Figure 25, Panel C). Reserve accumulation and prevention of “Dutch Disease” and exchange rate overshooting were consistent with macroeconomic policy recommendations for the resource-rich economies (IMF (2012)).

**194. In the wake of the fall in oil production and prices during 2013–15, the CBN sought to tighten control over the foreign exchange market.** Owing to a sharp fall in oil production relative to the budget and a reversal of capital flows in 2013, both fiscal and external buffers were much lower going into the 2014 crisis: the Excess Crude Account had been depleted to US\$4 billion (½ percent of GDP) and GIR were reduced to US\$40 billion (about 8½ months of imports). With reserves approaching decadal lows, the CBN devalued the naira in November 2014 and February 2015 and raised the MPR by 100 basis points. In February 2015, it closed the Dutch Auction System window and started intervening (almost daily) in the interbank foreign exchange market, partially meeting unfulfilled and legitimate demand at a pre-announced rate. Pressures in the foreign exchange market increased and are most evident in the spread between the rates traded in the interbank market and those in the bureau de change segment. This spread widened from around three to 5 percent in 2014 (Figure 25, Panel D) to around 10 percent in the first half of 2015, with spikes reflecting specific instances of pressure (e.g., March and July 2015). With pressures elevated, the CBN introduced exchange restrictions in June 2015 to prevent a further decline in GIR.

**195. Recent events have highlighted the weaknesses in the monetary framework arising from the pursuit of multiple objectives.** The CBN aims to simultaneously target domestic price stability while closely managing the exchange rate and the volume of reserves. While sometimes achievable during periods of benign economic and market conditions, in the face of shocks, not all of these objectives will be attainable without recourse to policies that lead to market distortions (as in the case of wide spreads between different market segments), or where policy adjustments (monetary and/or fiscal) address structural foreign exchange demand-supply mismatches. And such adjustments may not be desirable given prevailing domestic economic conditions. While the nominal effective exchange rate (NEER) has fallen over 20 percent in the last ten years, the real effective exchange rate (REER) has appreciated by around 50 percent (Figure 25, Panel E) even after the recent significant falls. Ultimately, the authorities will need to establish a hierarchy of objectives.

Figure 25. Nigeria—Selected Economic Indicators



Source: IMF staff calculations.

## Algeria, Iran, Kazakhstan, and Yemen

**196. High oil dependency shapes the economic landscape.** Rising oil revenues over the last decade have enabled higher government expenditure across these countries to support growth, stabilize the exchange rate, and weather regional uncertainties; it also helped scale up social spending and reduce unemployment. In addition, oil windfalls have contributed to a build-up of large external buffers (2–3 years of imports in Algeria, 16 months in Iran and Kazakhstan, and 5 months of imports in Yemen by end-2014). These countries (except Yemen) have established oil stabilization funds to insulate their economies from sharp fluctuations in oil prices and to save a portion of oil wealth. The sharp fall in oil prices since late 2014 however, has reduced these funds, increased recourse to central bank financing (Yemen), and forced public spending cuts.

**197. All these countries have *de facto* multiple monetary policy objectives.** While price stability is the stated prime objective of monetary policy (except in Iran), maintaining exchange rate stability has remained a key additional objective. The focus on exchange rate stability has been motivated by concerns over the strong pass-through of exchange rate movements to domestic prices, high dollarization of bank balance sheets, underdeveloped financial markets, lack of hedging instruments, and thin foreign exchange markets.

**198. Monetary policy in the context of heavily managed exchange rate puts pressure on foreign exchange reserves and complicates the conduct of monetary policy.** This was evident in Kazakhstan, for example, where the country devalued its currency by 20 percent against the dollar in 2009 and by 19 percent against the dollar in 2014. On August 20, 2015, in response to pressure on reserves, and in the context of overhauling the monetary policy framework toward the adoption of inflation targeting over the medium-term, the authorities allowed the exchange rate to float. The move came amidst pressures on the tenge following a series of negative external shocks (renewed downward pressures on oil prices and the ruble, and the yuan's depreciation) and followed the widening of the exchange rate band a month earlier. Immediately following the move to a floating exchange rate regime, the tenge depreciated by about 25 percent against the dollar. In Iran, the central bank has introduced greater exchange rate flexibility since 2012 in response to the intensification of economic sanctions and mounting pressures on the exchange rate. Preference for output over price stabilization has been the driving motive of Iran's monetary policy in recent years. In Algeria, in contrast, the exchange rate is assigned to preserving competitiveness and has occasionally been used to contain price pressures. Lack of well-developed hedging instruments and markets, together with the risks posed by large dollarization (58 percent of bank deposits in Kazakhstan and 40 percent in Yemen) further constrain monetary policy.

**199. Fiscal pressures challenge the design and implementation of monetary policy.** High government spending financed by large non-tax revenue—the local currency counterpart of commodity windfalls—has been a key source of high liquidity, which has proved to be difficult to sterilize. As a result, the effectiveness of monetary policy has been undermined, leading to asset and commodity price inflation. In Iran, direct financing of large housing projects by the central bank stood at 40 percent of base money at end-2011. Sterilizing large liquidity injections with foreign exchange sales has been limited, at times out of concerns over gross reserves. Furthermore, the

monetary transmission mechanism is often constrained by government-mandated credit policies. In Kazakhstan, public spending has expanded by 23 percent a year in 2007–2012. The policy rate (“refinancing rate”) is currently of limited relevance in Kazakhstan, limiting the central bank influence over money market interest rates (although the recent move on the exchange rate is expected to be accompanied by the introduction of a new policy rate, supported by standard open market operations, to help guide market interest rates). The monetization of large hydrocarbon budgetary revenue in Algeria has resulted in excess liquidity in the system, reducing the effectiveness of the rediscount rate. Moreover, the interest rate corridor is wide and does not signal the change in monetary stance.

**200. These challenges notwithstanding, monetary policy frameworks have been evolving, albeit at a slow pace.** Measures have been introduced recently to enhance central bank’s ability to manage liquidity in many countries. In Kazakhstan, the central bank has taken steps in preparation of the planned formal adoption of inflation targeting regime over the medium-term. These include, allowing the exchange rate to float, strengthening communication, preparing the grounds for the introduction of new policy rate instruments, enhancing governance by setting up a monetary policy committee, and achieving greater central bank independence in policy decision making. The Central Bank of Algeria has been working towards improving its autonomous liquidity factors forecast. It has also increased liquidity auctions and reserve requirements to tighten monetary policy in response to inflationary pressures, and recently reactivated its lending facilities. The government of Iran has agreed more recently to remove the housing project from the central bank balance sheet to help contain inflationary pressures. In Yemen, prior to the eruption of the political crisis in late 2014, the central bank and the ministry of finance signed a memorandum of understanding to reduce the central bank lending to budget in line with legal limits.

## D. Benefits of Effective Communications<sup>71</sup>

**201. The benefits of communication transparency (Bernanke et al., 1999) include: (i) enhancing the independence of the central bank; (ii) directly enhancing its macroeconomic performance by eliminating “noise;” and (iii) indirectly enhancing macroeconomic performance by building up the credibility of monetary policy.** A well-communicating central bank has to be able to explain to the public its views on current and future economic conditions, its own actions, and the outcomes of these actions. In doing so, the central bank ensures that monetary policy stays credible and inflation expectations are anchored even if inflation temporarily deviates from the target.<sup>72</sup> This section outlines best practices of central bank communication.

**202. *Transparent communication* satisfies the following three characteristics: clarity, openness, and timeliness.** In other words, the central bank does not withhold any meaningful information from the public and informs all agents as quickly as possible while making its communications easy to understand.

**203. *Clear communication* ensures that the various communication tools send signals that are consistent with each other and well-coordinated.** With a variety of communication tools available—fan charts posted on the website, monetary policy reports, press releases, interviews, webinars, Twitter messages, and so on—coordination of the main message across the individual tools is crucial. Moreover, the technical communication tools, such as inflation or output forecasts, typically presented with their respective fan charts, ought to be dove-tailed with narrative presented in the non-technical tools. For example, if the inflation chart forecasts inflation below the target, while the press release dwells on upward risks to prices, the public is likely to be confused as to what future monetary policy is going to be.

**204. *Open communication* provides the public with just the right amount of information to understand past economic developments and the future direction of monetary policy.** The benchmarks for monetary policy reports, minutes of meetings, and forecasting models have been established (Blinder et al. (2001); Clinton et al. (2015)). Over time, the leading central banks have become judicious as to the volume of information divulged: sometimes less can be more, especially as these banks have established their credibility. Needless to say, open communications tend to be frank, candidly identifying reasons for economic developments and the corresponding monetary policy decisions. Central banks in LLMICs—many of which suffer from low credibility—have made great strides in this direction.<sup>73</sup>

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<sup>71</sup> Prepared by Ales Bulíř.

<sup>72</sup> Kasekende and Brownbridge (2011) stressed the communication-to-credibility nexus in sub-Saharan Africa.

<sup>73</sup> For example, the July 2014 Bank of Ghana *Inflation Outlook & Analysis* candidly discussed fiscal risks to the inflation forecast as opposed to an opaque approach in the same document in June 2009 (<http://www.bog.gov.gh/>).

**205. *Timely communication helps the public understand the monetary stance in a policy relevant horizon.*** All relevant information needs to be disclosed as soon as possible, that is, in matter of hours or days. It is useful to periodically publish the details of the forecasting apparatus to influence expectations of those agents who use simpler models (Akram et al (2006)). Information that is disclosed with longer lags is useful mainly for accountability and research purposes. In general, LLMIC central banks have longer publication lags and rarely publish the underlying data contained in their monetary policy reports.

**206. *Do all policymakers need to speak with one voice? In practice, we have seen two approaches to this problem.*** Some central banks prefer to form a consensus and communicate with one voice to emphasize the main message—the prime example is the European Central Bank. The downside to the consensual approach is that it does not allow the public to fully appreciate the internal diversity of the views, which could be used to approximate the uncertainty of monetary decision making. Other central banks vote on policy interest rates and disclose the voting pattern to the public in order to draw attention to such uncertainty.

### **Communication Timeline**

**207. *Below is an illustrative timeline of central bank communication that has been suggested in Fund technical assistance reports.*** A central bank watcher should be able to understand (i) the outcome of the monetary policy meeting; (ii) the macroeconomic forecast; and (iii) a distribution of forecast risks that complements the central forecast.

#### *Day 1*

1. The central bank board or its monetary policy committee discusses monetary policy and after its conclusion issues a short press release on its website, both in national language(s) and in English. Audience: journalists and analysts.
2. The governor holds a press conference. The information content is broader than that of the press release, and, on a quarterly basis, when a new inflation report is prepared, the governor presents the inflation forecast. Alternatively, the governor comments on the latest data and their implications for the risks of the forecast in the interim period between two quarterly forecasts. Audience: journalists and analysts.

#### *Days 1 to 8*

The policymaker(s) gives interviews to the media, explaining the reasons behind the decisions and highlighting specific risks. The targeted audience is comparatively broad, and both specialized media readers and the general public can access the interviews on the website after they have been published in the media.

#### *Day 8*

1. The central bank publishes minutes of the monetary policy meeting. These contain a brief summary of the staff presentation given to the board members during the policy meeting; however, a major part of the minutes is devoted to the board debate. The minutes emphasize



those parts of the presentation that were commented on by board members and describe which additional risks were considered. The minutes indicate when board members disagreed either with the forecast or with the relevance of the forecast risks. The potential audience is again broad, because access to the website is unrestricted and the minutes use nontechnical language.

2. Monetary policy reports are published on a quarterly basis, together with the minutes. The report is a forward-looking document describing the new forecast together with the new data used in the forecast, thus containing substantially more data than the other communications mentioned so far. These forecasts are often presented to analysts at special seminars, which give an opportunity to present the forecasting mechanism in greater detail.

### *Beyond Day 8.*

The press office and central bank staff continue to disseminate the main message through the media (newspapers, radio, television, the internet). These communications focus on the key features of the new forecast and interesting partial analyses. They typically do not contain any additional economic information as compared to the inflation report, but they use less technical language to disseminate the message to a wider audience.

## **Irregular Frequency**

**208. In addition, the central banks communicate changes to their monetary policy strategy,** such as changes to the targeted index or to the policy instruments, typically in a stand-alone document. Most central banks also produce research publications, some of which provide additional information about monetary policy or forecasting apparatus. The potential audience is restricted to central bank watchers and academic researchers, as these publications use technical language.

**209. What happens to the various communications? They are read and scrutinized along multiple dimensions.** First, analysts tend to focus on the consistency between the numerical forecasts and accompanying policies and often find discrepancies. For example, Bulíř et al. (2008) showed that monetary policy communication was clear—with no discrepancies—in about five out of six observations in their 2000–05 sample of emerging market countries, while the ECB had far fewer discrepancies (Bulíř, et al. (2012)). Second, the texts can be “mined” for the underlying message (see Bholat (2015) for a review). Such techniques are a kind of content analysis summarizing what texts are about. Needless to say, only communication that is readable can be understood. Empirically, readability of central bank documents has varied substantially: while the Bank of England communication has required only high-school level English, as measured by the Flesch-Kincaid grade level score, readers of Thai or Poland central bank documents have needed at least undergraduate degree, limiting the outreach of their communications (Bulíř, et al. (2012)).<sup>74</sup>

<sup>74</sup> Although no systematic readability of LLMICs monetary policy reports has been done, Bank of Ghana *Inflation Outlook & Analysis* documents Flesch-Kincaid grade level score is about the same as that of the Czech Republic or Poland as reported by Bulíř, et al. (2012).

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