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Monetary and Capital Markets Department

A Journey to Inflation Targeting: Easier Said than Done
The Case for Transitional Monetary Arrangements along the Road

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Preliminary Draft

Abstract

Most central banks around the world are targeting inflation. Yet, for a number of countries the central bank is not in a position to rely on conventional inflation targeting to achieve its objectives. This is most notably the case in frontier countries faced with implementation constraints or a weak enabling environment. The paper makes the case for transitional monetary arrangements involving flexible monetary targeting. In particular, a two-pillar framework (i.e., monetary and economic analysis) along the road can help introduce operating procedures which support the development of monetary policy transmission, as well as a forward-looking approach to monetary policy making. By mitigating the risks of undesirable outcomes due to rigid reliance on money targets, or a premature shift to interest rates as the operating target of monetary policy, a two-pillar framework can help design a suitable review-based conditionality to assess monetary policy in Fund-supported programs for frontier countries with evolving monetary policy regimes.

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ABBREVIATIONS

BMP	Broad monetary program
CB	Central bank
EMPA	Enhanced monetary policy analysis
EMT	Enhanced monetary targeting
IT	Inflation targeting
ITL	Inflation targeting lite
MOF	Ministry of Finance
MPCC	Monetary policy consultation clause
MT	Conventional monetary targeting
NSO	National statistical office
OMO	Open market operations
RMP	Reserve money program

EXECUTIVE SUMMARY

This paper discusses a road map for modernizing monetary policy in frontier countries with evolving monetary policy regimes. Difficulties could stem from implementation constraints, or a weak enabling environment, although the country may have achieved good progress in inflation moderation. For such countries conventional monetary targeting (MT) may be challenged by evolving economic structures. Yet, adopting inflation targeting (IT) may not be desirable or feasible in the near term.

The paper argues that transitional monetary arrangements involving flexible monetary targeting, in particular a two-pillar monetary regime combining monetary and of economic analysis, can provide a suitable framework: (i) downgrading the binding nature of monetary aggregates in the short-term and enhancing monetary analysis allows the central bank to focus the daily liquidity management on short-term interest rates to enhance monetary policy transmission, and (ii) developing economic analysis allows the central bank to introduce elements of a more forward-looking approach to monetary policy making. Two stylized options for implementing flexible monetary targeting are discussed:

- *Enhanced Monetary Targeting (EMT)*. Broad money is retained as intermediate target or indicator. Monetary operations focus on stabilizing short-term interest rates to support monetary policy transmission. Loose adherence to longer term reserve money objectives may serve as a constraint on average monetary operations over a period of time. Periodic reviews of performance vis-à-vis broad money allow assessing the need for adjusting the monetary policy stance. The reviews incorporate inputs from enhanced monetary analysis as well as elements of economic analysis.
- *Enhanced Monetary Policy Analysis (EMPA)*. As monetary policy analysis capacity centered on an inflation forecast is developed; the economic analysis pillar takes center stage. Monetary analysis evolves towards cross-checking economic analysis. This approach is relevant for central banks with a robust model-based analytical capacity.

The suitability of EMT- or EMPA-type arrangements depends on the level of conformity with best practices for effective monetary policy. Achieving a high degree of conformity should not be seen as an inescapable pre-condition to move to a particular framework. Ultimately, this will entail judgment on the part of the monetary authorities, together with the firm commitment to take the required steps to strengthen conformity.

The paper discusses guideposts to prevent undesirable outcomes which could arise due to: (i) premature shift to conventional inflation targeting, which could lead to the loss of an effective nominal anchor; and (ii) rigid reliance on monetary targets, which could unduly delay monetary policy modernization. Two-pillar frameworks can be particularly useful for the design of the recently introduced review-based conditionality to assess monetary policy in countries with evolving monetary policy regimes.

I. INTRODUCTION

A. Background and Objectives

1. **Most central banks are targeting inflation.** In line with the emergence of a consensus in the economic literature in the 1990s, currently almost all central banks around the world are legally obliged to pursue price stability as one of their primary objectives.² While some central banks have been assigned more than one objective, price stability has often been given priority status. Typically, the law of the central bank formulates the objectives of monetary policy in a manner that identifies price stability as the most effective way in which the central bank can contribute to economic growth. This approach is in sharp contrast with policies of the 1970s in a number of countries, whereby central banks were expected to channel financial resources to priority sectors, thereby making them akin to development banks. In parallel, the independence of central banks has been strengthened significantly as a means to attain this goal (Table 1).

Table 1. Central Bank Independence Scores

Regions	1980s	2003
AFR	0.33	0.53
APD	0.30	0.63
EUR	0.30	0.88
MCD	0.30	0.53
WHD	0.36	0.67
All	0.32	0.68

Source: Laurens et al (2009).

2. **Frontier countries with either relatively less developed financial markets, facing implementation constraints, or a weak enabling macro and financial environment are modernizing monetary policy along the lines adopted in advanced and emerging market economies.** Establishing a *forward-looking*³ approach to monetary policy, associated with interest-rate focused operating procedures to achieve an inflation objective is a desirable objective for these countries. The literature on the topic focuses mainly on countries that have developed financial markets, and where the central bank has well established forecasting tools. Limited guidance is available for frontier countries with evolving monetary policy regimes.

3. **Fund publications have devoted limited or incomplete attention to the operational issues faced by frontier countries.** Among the many papers recently published at the Fund the following are of interest: (i) establishing the initial conditions in support of *inflation targeting*-IT (Carare et al, 2002); (ii) assessing transitional monetary regimes, such as *inflation targeting lite*-ITL (Stone, 2003); and (iii) monetary implementation at different stages of money market development (Laurens, 2005). However, none of these documents provides comprehensive operational guidance for transitioning. Carare et al (2002) provides a comprehensive list of specifications desirable for effective IT, but falls short of presenting a road-map for moving towards the final goal. Stone (2003) discusses a number of relevant

² Based on a 2003 survey of practices in 163 central banks representing 181 countries, 95 percent of central banks have price stability as one of the primary objectives of monetary policy (Laurens et al, 2009).

³Key Concepts used in this paper are defined in Appendix I. They are *italicized and underlined* the first time they are mentioned.

issues for frontier countries, and provides an analysis of countries' performance under ITL. However, the paper does not outline the options that may be available for moving away from *conventional monetary targeting-MT* in a way that ensures retaining a *nominal anchor*, while also supporting the monetary policy transmission. Laurens (2005) provides a stylized sequencing of the transition to market-based monetary instruments in a four-stage process, but the discussion does not include a comparable level of operational guidance with regard to the choice of a monetary regime during the transition. This paper seeks to fill the gap for frontier countries with scope for conducting an independent monetary policy. The methodology borrows elements from Schaechter et al (2002) regarding the building blocks for effective forward-looking monetary policy, Laurens (2005) regarding monetary policy implementation in the context of shallow markets, and Maehle (forthcoming) regarding monetary policy implementation issues for countries with evolving monetary policy regimes.

4. **The subject matter has gained momentum at the Fund in the context of the recently introduced monetary conditionality for countries with evolving monetary policy regimes.**⁴ The evolution of monetary policy frameworks has implications for monetary conditionality in Fund-supported programs. There are clear guidelines and established practices for monetary conditionality for money targeting and inflation targeting frameworks. However, neither of these existing conditionality frameworks is well-suited for frontier countries with evolving monetary policy regimes. The new framework enhances the existing review-based conditionality framework by introducing a monetary policy consultation clause (MPCC), as an option for countries with evolving monetary policy regimes in place of a performance criterion on reserve money or net domestic assets. Programs would set a central path for a target variable (either a monetary aggregate or inflation) with a single tolerance band (with an option to have an inner band where deemed necessary). Deviations from the band would require a formal consultation with the Executive Board, and would be informed by staff's assessment of whether deviations are explained by compensating factors and proposed remedial measures, where necessary, in order to complete a review. The review-based approach to monetary conditionality rests upon enhanced central bank capacity to analyze monetary conditions. The MPCC is expected to provide flexibility in the conduct of monetary policy and align conditionality to the changing monetary policy frameworks in countries with evolving monetary policy regimes.

5. **In that context, this paper discusses options for developing forward-looking and interest-rate focused operating frameworks aligned with capacities and the enabling environment in frontier countries.** Such an exercise, because of its multi multidimensional nature, in no way can lead to prescriptive or "one-trajectory-fits-all" solutions. Instead, the

⁴ On March 26, 2014, the IMF Executive Board discussed the monetary conditionality framework in Fund-supported programs in countries with evolving monetary regimes. The Paper and Press Release can be found at <http://www.imf.org/external/pp/longres.aspx?id=4853> - <http://www.imf.org/external/np/sec/pr/2014/pr14148.htm>

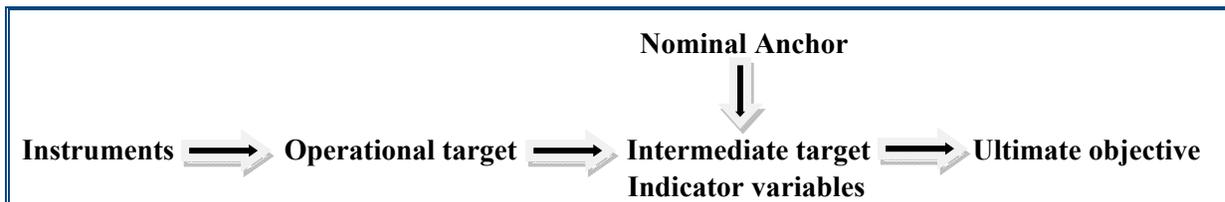
objective is to provide: (i) a conceptual framework which takes into account the specificities of frontier countries; (ii) a set of best practices for effective monetary policy against which individual countries' initial conditions can be assessed; and (iii) a mapping exercise between conformity with the best practices and the options for anchoring monetary policy available to frontier countries.

B. Choice of a Monetary Policy Regime in Countries with Evolving Regimes

6. **Monetary policy conduct is facilitated by the specification of a framework on the basis of which economic agents can form expectations.** This requires the adoption of a well-articulated ultimate policy objective, accompanied by an intermediate target, an operational target, and effective monetary policy instruments (Figure 1). All these elements constitute a monetary policy regime in its broader meaning. The underlying assumption is that agents will stabilize their expectation in the future through some anticipation of the monetary policy stance.

- **The ultimate objective** refers to the final goal and sole responsibility of monetary policy. It is typically set by the government so as to ensure legitimacy. Nowadays, it is typically inflation.
- **The intermediate target** refers to a variable correlated to the ultimate objective, which monetary policy can affect more directly. It is commonly referred to as the nominal anchor.
- **The operational target** is the guide to ongoing (daily) central bank operations. It supports the achievement of the intermediate target.
- **The instruments** refer to the tools used by the central bank, over which it has full and exclusive control, to satisfy the operational target.

Figure 1. Basic Components of a Monetary Policy Framework



7. **The choice of a monetary regime depends on the country's political and economic institutions and an understanding of the transmission channels of monetary policy.**⁵ Central banks in countries faced with structural breaks due to evolving economic structures and financial system face particular challenges, and none of the standard monetary

⁵ See Appendix II for a discussion on the transmission channels of monetary policy.

regimes may be a viable option. By necessity, any monetary regime suitable for frontier countries may have to incorporate elements from those standard monetary regimes. Most likely they will have to evolve as progress is achieved in reaching a steady state, so as to ensure that the instruments and targets (operating and intermediate) remain aligned with relative strength of the transmission channels.

8. **The level of development and sophistication of domestic financial markets play also an important role.** Countries with shallow financial markets and low levels of financial intermediation have typically been able to achieve their objectives under MT.⁶ Countries with diversified and deep financial markets and where the monetary policy transmission is strong typically rely on monetary regimes whereby the central bank's money market operations (usually of short term tenors) serve as benchmark for short term market rates, which in turn impact the yield curve and banks' deposit and lending rates. With the appropriate analytical and instruments the central bank is able to rely on an interest rate as the operating target in a fully forward looking manner, where an inflation forecast within a predefined horizon serves as the nominal anchor, as is the case with IT.

9. **Conventional monetary targeting and inflation targeting are well-defined monetary regimes which provide a framework to rationalise the decision-making and implementation process.** The intermediate target (a monetary aggregate or an inflation forecast) plays the role of nominal anchor to agents' expectations. In a MT regime monetary policy is implemented by the central bank's direct control over reserve money, which should make clear to the central bank when and why it should intervene. Under IT the timing and triggering of the central bank's intervention is less obvious given the variable lags between the monetary policy decisions and their impact on inflation outcomes. Therefore, the trust of economic agents in the IT strategy is essential, which calls for a high level of credibility for the central bank. More than in MT, communication, transparency and accountability is critical in for IT to help build credibility because this impacts expectations as opposed to the more direct quantity-based bank lending channel of monetary policy.

10. **However, neither MT nor IT monetary regimes may be appropriate for frontier countries.** MT has proven to be an effective disciplining tool to achieve monetary and fiscal restraint and reduced inflation and its volatility in the earlier stage of stabilization under a flexible exchange rate. With lower inflation, however, exogenous shocks become relatively more important and the short-term trade-offs between price, output, and exchange rate stability are likely to require judgment by policymakers that in turn needs to be supported by appropriate analytical tools. Many countries have found that the key relationships upon which monetary targeting is based (i.e., money multiplier and velocity) have become

⁶ See Appendix III for a discussion on the relevance of conventional monetary targeting.

relatively weaker and more unstable thereby undermining policy effectiveness.⁷ Finally, strengthening monetary policy transmission is challenging under MT. Yet a number of countries are not in a position to commit to an announced inflation target within a predefined policy horizon to anchor expectations about future inflation, as required for IT. However, moving to a framework where inflation plays a central role, together with a focus on analysis-rather than strict adherence to a rigid money rule-is a reasonable choice on the account of the evolution of economic and financial infrastructures.

11. **Vital for frontier countries is to rely on a monetary framework “friendly” to monetary policy transmission, while at the same time able to provide an effective nominal anchor to stabilize inflation expectations.** This dilemma is particularly acute in the work of the Fund with program countries. Safeguarding Fund resources may require adopting a monetary conditionality framework that is seen as effective in view of past events or the actual strength of the transmission channels. This can lead to reliance on rigid and rules-based frameworks, such as those under conventional monetary targeting. However, the costs in terms of limited flexibility for the conduct of monetary policy may lead to unduly holding back monetary policy modernization, and in particular progress in strengthening monetary policy transmission.

12. **Furthermore, responding appropriately to exogenous shocks requires monetary policy flexibility, which rigid reliance on MT regimes makes difficult to achieve.** Instead, there is a need to rely on multiple indicators, to introduce forward-looking analytical tools, reduced reliance on rigid policy rules, and increased weight given to discretion and judgment in the conduct of monetary policy.

13. **It is likely (but not necessary) that the transition will involve a gradual process.** First, reaching steady-state economic equilibria can be a lengthy process. Second, building capacity for forward-looking monetary policy requires developing appropriate analytical capacity at the central bank, which in turn is only possible if the appropriate statistical information is collected and made available to the central bank. Third, gradualism may also be warranted since monetary policy modernization along the lines followed by advanced countries requires well functioning monetary policy transmission, a task that is not under the full control of the central bank.

14. **From an operational point of view, the role assigned to three key macroeconomic variables (i.e., monetary aggregates, exchange rate, and interest rates) and to central bank communication needs to be addressed.**

⁷ Two broad factors may lead to instability in the key relationships upon which monetary targeting is based: structural changes in the economy and financial innovation which complicate the identification of the most appropriate monetary aggregate to measure money supply.

- *Monetary aggregates.* Based on the level of confidence provided by empirical evidence the role of monetary aggregates (i.e., broad money, reserve money, credit) ranges from being quantitative targets, to leading indicators to supplement the short-term risks to price stability with medium-term risks.⁸ The GFC as only reinforced the view that the information extracted from money (and credit) should not be excluded a priori from monetary policy analysis.⁹
- *Exchange rate.* A certain degree of flexibility is needed to support an independent monetary policy. The central bank need therefore to gain good understanding of the exchange rate pass-through so as to communicate clearly the role the exchange rate will play in the strategy. Critical is the articulation of an intervention strategy in the foreign exchange market.
- *Interest rates.* While the monetary policy transmission may be weak, monetary policy is essentially about setting the appropriate level of interest rates in the economy, and the central bank cannot adopt a “benign neglect” attitude even during the transition process of monetary policy modernization. Moreover, even under MT-where interest rates are endogenous and expected to reach their equilibrium level based of the demand and supply conditions for a given level of money, supply-market imperfections can undermine the price discovery process. This can result in high volatility or overshooting that can be detrimental to the real economy. Even more importantly, signalling the monetary policy stance is easier if the central bank relies on a price (i.e., an interest rate), as opposed to a quantitative target.
- *Communication.* Central bank communication takes on an important role to anchor inflation expectations (i.e., a measure of the public’s confidence in the central bank to meet its objectives). Beyond communication to market participants, in transition countries this may require actions to raise the financial literacy of the public at large. Communication should be about key macroeconomic variables as well as about the intervention strategy of the central bank in the foreign exchange market.

⁸ See Appendix IV for a discussion on the role of money in monetary policy.

⁹ Trichet (2013).

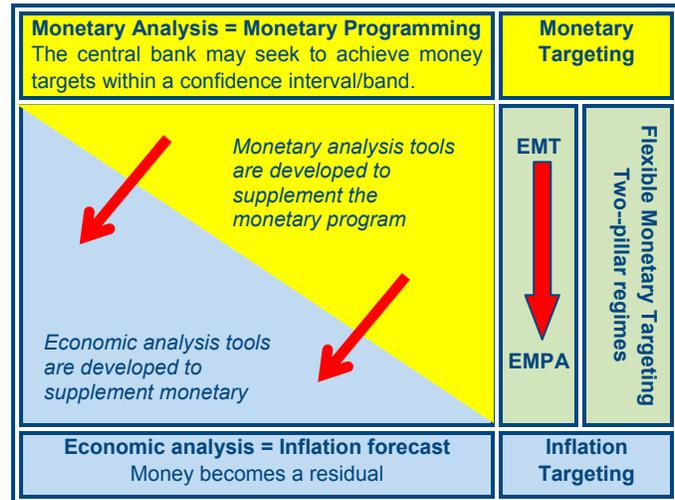
II. FLEXIBLE MONETARY TARGETING: TWO-PILLAR STYLIZED FRAMEWORKS

A. Conceptual Framework

15. An appropriate framework for frontier countries may lie anywhere on a continuum from strict adherence to monetary targets, as is the case under MT, to the constrained flexibility that goes with formal inflation targets, as is the case under IT (Figure 2).

Monetary regimes in between can be characterized as flexible monetary targeting regimes combining elements of monetary and economic analysis (i.e., two-pillar frameworks), with idiosyncratic features to take into account the wide range of frontier countries' initial conditions.

Figure 2. Two-Pillar Stylized Frameworks



16. Two stylized types of transitional frameworks can be distinguished, depending on the relative weight given to the monetary and economic pillars: enhanced monetary targeting (EMT), and enhanced monetary policy analysis (EMPA).

- *Type 1: Enhanced Monetary Targeting (EMT)*. Broad money is retained as the intermediate target, and periodic review of actual outcomes serve as the basis for assessing a need to modify the stance of monetary policy. Day-to-day monetary operations aim at stabilizing short-term interest rates (rather than achieving a reserve money target as is the case in conventional monetary targeting). Loose adherence to longer term (average) reserve money targets may serve as longer term constraint on the liquidity operations.
- *Type 2: Enhanced Monetary Policy Analysis (EMPA)*.¹⁰ Monetary policy analysis centered on an inflation forecast takes center stage. The status of broad money is downgraded from target to indicator, and monetary analysis serves to cross-check economic analysis.

17. Both frameworks retain a significant role for monetary aggregates. Several reasons can motivate retaining a role for monetary analysis to maintain flexibility in the policy reactions to shocks to inflation, rather than moving to IT where monetary aggregates play a limited role, if any, including:

¹⁰ Except for the role assigned to money, EMPA borrows a number of elements of *inflation targeting lite* (ITL).

- *Large, semi-persistent, supply shocks to inflation.* These shocks make it harder to forecast inflation with a sufficient degree of accuracy, and to achieve the inflation target without undesirably large swings in the monetary policy stance that could result in excessive exchange rate and output volatility or financial instability. Ultimately this could undermine the support for and credibility of the framework. These shocks may also make it unwise for the central bank to commit to meeting a formal inflation target within a relatively short time horizon. Monetary aggregates can help providing monetary policy formulations and commitments with the longer term anchor that is needed under these circumstances.
- *Large real and fiscal shocks to equilibrium interest rates relative to money demand shocks.* This may increase the informational power of monetary aggregates relative to interest rates in predicting inflation, in particular over the medium term.
- *Weak macro-financial building blocks.* Even in cases where the central bank has developed a robust inflation forecast, it may not be suitable to move to IT. In particular, weaknesses in the macro-financial building blocks can generate large shocks to the economy and to the balance sheet of the central bank, preventing the central bank from “doing all that it takes” to achieve an inflation target within a predefined time horizon.¹¹
- *Cross-checking role of monetary analysis.* In assessing the outlook for price stability, the indications coming from economic analysis can be cross-checked with the perspective coming from monetary analysis from a medium to long-term perspective.
- *Relevance for financial stability.* Monetary analysis provides useful information (possibly complemented by analysis of flow of funds in the economy and the banking sector) that may contribute to the analysis of risks to financial stability.
- *Uncertainties regarding forecasting tools.* They relate to the suitability of the models used to value economic signals and make projections, and the value of the models’ parameters.

B. Enhanced Monetary Targeting

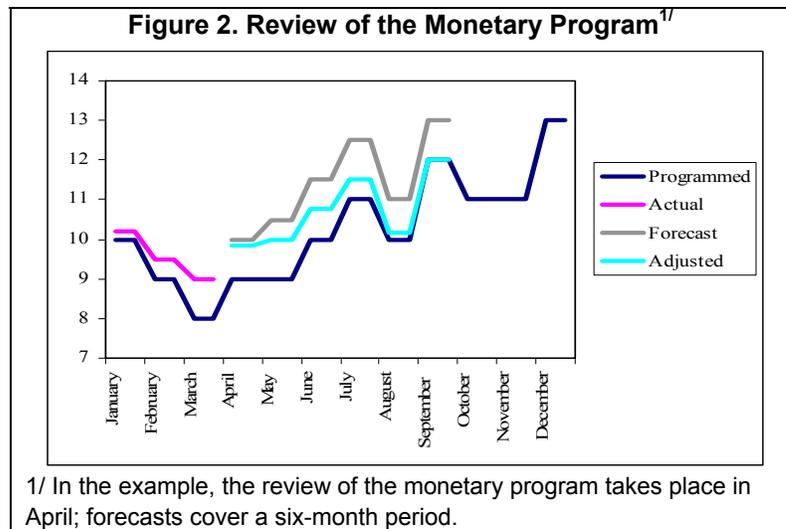
18. **In the absence of a reliable inflation forecast the central bank may continue relying on the broad monetary program (BMP).** Flexibility in implementation can already be introduced in conventional monetary targeting, for instance when the central bank seeks to achieve reserve money targets within a confidence interval. However, retaining the RMP as a tool for calibrating monetary operations places a constraint on the ability of the central bank to manage liquidity in ways supportive of monetary policy transmission. Therefore, while

¹¹ The GFC has shown that, even for IT central banks, factors may affect inflation beyond the chosen horizon that may need to be taken into account in current monetary policy decisions. This led most– if not all–IT central banks to adopt what has been termed as flexible inflation targeting (see in particular Woodford, 2013, in CEPR *Is Inflation Targeting Dead? Central Banking after the Crisis*, page 76).

broad money targets derived from the BMP are used as intermediate targets, reserve money is no longer the operating target; instead, monetary operations are calibrated to stabilize short-term interest rates so as to strengthen monetary policy transmission.¹²

19. **Deviations from the broad money targets do not necessarily, or in a mechanical way, involve a change in the monetary policy stance.**¹³ Fully accommodating the demand for reserve money on a day-to-day basis may lead to a deviation of broad money from its targeted level. In view of the uncertainties regarding the parameters of the BMP (i.e., multiplier and velocity), this should not necessarily be a matter for concern for the central bank. However, as the financial program time horizon (typically semi-annual or annual) progresses, periodical reviews (for instance quarterly) of the key parameters of the BMP are undertaken to: (i) verify the deviations between the actual level of broad money and the target; (ii) assess the need for a change in monetary policy stance to bring broad money back on track if needed. While the central bank would still be using quantities as the intermediate target (i.e., a broad monetary aggregate), it would change the liquidity management stance and move short-term interest rates only when there is evidence of an undesirable deviation of broad money from its target.

20. **When devising a new path to bring the BMP back on track, one must take into account that within a short time frame program components have to be forecasted (Figure 3).** It is only for longer terms that program targets can be taken as an input. Therefore, this step in the review process begins with a longer-term liquidity forecasting exercise to estimating how broad money



should evolve in the course of the next months, starting from current values. Then the estimated path is modified to gradually converge to the desired target. If the monetary analysis concludes that the monetary program's underlying assumptions hold (i.e., deviations

¹² In the short term the central bank should accommodate liquidity shocks; by doing so interest rate volatility will be lower, which will strengthen the clarity of the policy signal through the interest rate channel. This approach recognizes that it is only for a horizon beyond the short term that monetary policy can influence money demand.

¹³ This approach is relevant for countries that cannot fully focus on targeting inflation rigidly or permanently, for instance if the economy is subject to regular but uncertain shocks or to fiscal dominance (Blanchard, 2005).

carry inflationary or deflationary risks) the central bank should consider changing the monetary policy stance (i.e., increasing or decreasing the amount of structural liquidity operations), and communicate its decision via appropriate channels (typically a change in the interest rate corridor or, when adopted, the central bank policy rate). While the central bank would still be targeting quantities (i.e., a broad monetary aggregate), it would change the liquidity management stance and move the interest rate corridor and the central bank policy rate only when there is clear evidence of an undesirable deviation of the monetary aggregate(s) from the targets in the BMP.

21. When devising a new path to bring the BMP back on track, one must take into account that within a short time frame program components have to be forecasted. It is only for longer terms that program targets can be taken as an input. Therefore, for each of the main BMP items that have diverged from the desired path, this step in the review process begins with a longer-term liquidity forecasting exercise that consists of estimating how they should evolve in the course of the next months, starting from current values. The estimated path is then modified to gradually converge to the BMP target within the relevant horizon.

C. Enhanced Monetary Policy Analysis

22. Central banks having developed a capacity to develop economic analysis may downgrade further the role of money and move to EMPA. The central bank's inflation forecasts is at the center of the monetary strategy, although this may not lead to a firm commitment within a preset policy horizon; it is supplemented with an auxiliary reference range for broad money that can be utilized to anchor monetary policy. An enhanced monetary policy analysis (EMPA) exercise takes the role of the periodic review of broad money target under the EMT framework. The EMPA exercise involves the analysis of the underlying economic situation based on additional tools adapted to the analytical capacity of the central bank and its technical ability to formulate monetary policy.¹⁴ EMPA introduces a dual targeting regime where the weights applied to the money versus the inflation forecast will vary over time depending on the confidence the central bank has on each pillar. The inflation forecast would be more prominent when the central bank has a good grasp of the drivers of inflation or when inflation trends are more persistent. Money targets would be more important when money demand is more stable and better understood.

III. MAPPING OPTIONS AND CONFORMITY WITH BEST PRACTICES

A. Building Blocks for Effective Monetary Policy

23. The building blocks for effective monetary policy can be grouped into three categories (Table 2): (i) the institutional set up for the central bank, most notably a governance framework with price stability as the de jure and de facto primary objective of

¹⁴ See Appendix V "Guiding Principles for Monetary Policy Formulation" for guidance on this issue.

monetary policy; (ii) macro and financial development and stability, including a clear separation between monetary and fiscal policy, the ability to clearly articulate the role of the exchange rate and the related intervention policy of the central bank in the foreign exchange market, and a stable financial sector; and (iii) data and analytical capacity to support an understanding of the transmission channels, an effective liquidity forecasting framework, a transparent decision-making process, an organization of the central bank's units that supports policy implementation, and an appropriate communication policy.

Institutional Best Practices

Table 2. Building Block for Effective Monetary Policy

	Best Practices	Rationale - Comments	Responsibility
Institutional	Price stability enshrined in law as primary objective of the central bank (CB).	Prevent developmental objectives from undermining ability to achieve price stability.	Parliament. Requires consensus in society
	De facto & de jure CB independence & matching level of transparency and accountability.	Improve independence, transparency and accountability, pillars of central bank governance regardless of the monetary regime in place.	Parliament. Requires consensus in society
Macro Financial	Clear separation between monetary and fiscal policy.	Curtail fiscal dominance to contain uncertainties in monetary policy conduct.	CB and Ministry of Finance (MOF)
	Clarity about the role of the exchange rate in the monetary strategy.	Clear objectives and strategy for official intervention consistent with the monetary regime.	CB
	Stable, sound and deep financial sector.	Improve central bank ability to manage liquidity at aggregate level (allocation among banks via interbank market).	CB, financial regulator and MOF
Data and Analytical Capacity	Effective liquidity forecasting framework.	Ensures stable liquidity conditions in the money markets by the CB.	CB
	Adequate statistical data.	Specifications based on the monetary regime.	CB and Statistics office
	Adequate tools to communicate monetary policy.	Specifications based on the monetary regime.	CB
	Proven CB analytical capacities to support an understanding of the transmission channels.	Ability to assess the role of money, interest rates, and the exchange rate, as needed in view of the monetary regime in place.	CB
	Clear decision-making process.	Specifications based on the monetary regime.	CB
	CB organization suited to support policy implementation.	Specifications based on the monetary regime.	CB

24. **Developing the building blocks involves a long-term commitment on the part of the country's authorities going beyond the central bank.** The central bank should play a catalytic role, but several issues lie outside its direct responsibility (Table 2). Therefore, while a move to a two-pillar framework may be appropriate early on in the modernization process of monetary policy, it will be important to ensure that there is a firm commitment on the part of the country authorities to take the required steps to strengthen conformity with

best practices for effective monetary policy associated with the building blocks. Technical assistance by the Fund can help support the authorities in their efforts.

B. Mapping Exercise

25. **The suitability of an EMT-type versus an EMPA-type framework depends on the level of conformity with the best practices associated to the building blocks.** A high degree of conformity should not be seen as a pre-condition for a move. Ultimately, the move entails judgment on the part of the monetary authorities, together with the firm commitment to take the required steps to strengthen conformity. Table 3 provides guideposts to prevent undesirable outcomes which could arise during the process due to: (i) a premature shift to interest rates as the operating target for monetary policy, which could lead to the loss of an effective nominal anchor; and (ii) a rigid reliance on reserve monetary targets, which could delay monetary policy modernization. Moving first to EMT may be advisable for countries early in the transition process. A move to EMPA may be envisaged when a broad range of analytical tools are in place, or as an interim step to IT. Some countries may not be willing or able to move beyond EMT.

Institutional best practices

26. **Institutional best practices are features that are desirable for any monetary regime.**¹⁵ They sum up the consensus view with regard to the primary objective of monetary policy and associated the governance framework for the central bank. The adoption of an EMPA-type framework requires a high level of conformity with all institutional best practices. However, under an EMT framework, reliance on the BMP, possibly supplemented with a flexible implementation of the RMP, can provide safeguards against the risks associated with the lack of a clear primary objective for monetary policy, or limited autonomy in policy formulation. However, both options for a two-pillar framework call for an adequate balance sheet capacity at the central bank to implement monetary policy: the central bank should be adequately capitalized, and able to rely on an income stream sufficient to manage the costs of implementing monetary policy, in particular the desired level of foreign reserves and the cost of any sterilization needs.¹⁶

27. **The more the central bank moves away from reliance on money targets or indicators, the more emphasis needs to be placed on transparency and the related communication strategy.** A commitment to transparency can provide an incentive to clearly articulate the objectives of monetary policy, adopted measures, and achieved results to the public. Ultimately, it enhances central bank credibility, and protects its independence as it supports accountability and is a deterrent to pressures from government or pressure groups.

¹⁵ See Laurens, Arnone, and Segalatto (2009) for a comprehensive review of the literature and country practices.

¹⁶ See Archer and Moser-Boehm (2013).

Table 3. Mapping Options with Conformity with Best Practices

Specifications		Best Practices	EMT	EMPA
<i>Institutional</i>	Independence	Price stability de jure primary objective of CB.	Highly desirable.	Required.
		Independence of CB in policy formulation and in setting the policy rate.	Highly desirable.	Required.
		De facto operational autonomy (i.e., financial capacity to conduct monetary operations).	Required	Required.
	Accountability	Framework making the CB accountable to society (i.e., Parliament or Executive Branch).	To be assessed based on CB independence level	Required.
Transparency	Adequate level of CB disclosure and publications.	Country specific.	Country specific.	
<i>Macro Financial</i>	Fiscal policy	Sound financial relationship between the CB and the government, involving no monetary financing or quasi-fiscal activities by the CB.	As minimum, limits to monetary financing monitored in the BMP.	Ability of the government to finance all its needs in the market.
	Forex policy	Articulate role of the ER in monetary strategy and related intervention policy.	ER flexibility increased. Increased use of monetary tools to influence the ER.	ER fully flexible. Intervention focused on correcting market disorder.
	Financial sector	Stable financial sector.	No systemic weaknesses that may lead to loss of monetary control.	Efficient financial sector, including robust interest rate transmission channel.
		Deep and active interbank market.	Desirable for ST maturities.	Required.
<i>Data and Analytical Capacity</i>	Systemic liquidity management	Effective financial market infrastructure for the settlement of interbank transactions.	Highly desirable.	Required.
		CB makes liquidity forecasts. Government produces cash flow projections.	Framework being introduced and tested.	Framework fully operational.
		Define a set of appropriate monetary and forex instruments for policy implementation.	Framework being introduced and tested.	Framework fully operational.
	Analytical and research	Availability of high-frequency data (i.e. monthly basis for soft economic indicators and quarterly basis for national accounts)	Not required, except for money data (required).	Required.
		Statistical tools and short-term forecasting instruments able to support a comprehensive analytical framework. Minimum specifications based on the option.	Short-term monetary analysis money-based inflation forecasting.	Model-based inflation forecast. Cross-checking of economic and monetary analysis. Analysis of channels of transmission.
	Decision-making	Minimum specifications based on the way the transitional monetary regime is operated in practice.	Flexible and various arrangements possible.	Integrate economic and monetary analysis into the decision-making process.
Organization	Minimum specifications based on option.	Country specific.	Country specific.	

Required	Desirable - Highly desirable	Country specific
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Macro-financial best practices

28. **Successful monetary policy modernization calls for a sound financial relationship between the central bank and the government.** For countries with a history of fiscal dominance, the main challenge is to restrict the ability of the government to rely on the direct credit of the central bank, until all government needs can be funded in the market. Countries facing such challenges will need to rely on the BMP, and those able to introduce flexibility in the implementation of the RMP may adopt an EMT-type framework.

29. **Beyond the formal adoption of an exchange rate regime allowing for some flexibility, adoption of a two-pillar framework calls for the articulation of the strategy for official intervention in the foreign exchange market.** Retaining some role for the exchange rate may be warranted as an indicator but not as a nominal anchor, and caution is needed to avoid a conflict of objectives or the appearance of it. Furthermore, given that anchoring market expectations will increasingly rely on policy actions, care is needed to ensure actual policy actions are consistent with policy announcements. Central bank credibility in that regard can benefit from adopting rules-based mechanisms for interventions, while retaining the right to unannounced interventions in case of extreme market conditions.

30. **A reasonably sound financial sector is critical to support monetary policy transmission.** Under EMT and EMPA the central bank should be able to rely predominantly on the interbank market for the redistribution among banks of the liquidity made available through open market operations. A number of factors may hinder the efficient functioning of the interbank market, and most notably actual or perceived balance sheet weaknesses of the participating financial institutions. Weak financial institutions may interfere in the interest rate and credit availability transmission channels in other ways. In particular, these financial institutions may have an incentive to react to an increase in interest rates (that, other things being equal, will dampen the demand for credit) by lowering their credit standards to continue lending and grow their way out to difficulty.

31. **A developed financial infrastructure is also needed to support monetary policy transmission.** Some features common to many transition countries can hamper the transmission channel such as a lack of “bankable” projects; weak accounting and auditing practices in the nonfinancial private sector; weak creditor rating systems and weak credit reference bureaus; weaknesses in collateral enforcement; and weak enterprise governance structures. All of these may obstruct the transmission from short-term money market rate to banks’ deposit or lending rates.

Data and analytical capacity best practices

32. **Data and analytical capacity best practices are for the most part within the control of the central bank.** Strengthening the related building block is a matter of building capacity in three areas: (i) liquidity management; (ii) understanding of the transmission channels; and (iii) analytical and research capacity. The main challenge is to ensure that

capacity building in those closely related areas goes concurrently, bearing in mind that establishing effective market-based monetary instruments can be a long-term process.

33. **Regarding reliance on interest rates as the operational target for monetary policy, a “range” for the central bank policy rate, rather than a “discrete/point” rate, may be considered in the initial stage of the monetary policy modernization.**¹⁷ The relationship between quantity and interest rates may be unclear during the transition, since money demand and multiplier relations may become unstable, making it difficult to identify general patterns between changes in short-term interest rates, monetary aggregates, and inflation. In that context, the adoption of the range for the policy rate can provide the central bank some operational flexibility to respond to market development, and absorb forecasting errors, with the policy range narrowed over time with improved understanding of the key relationships, eventually leading to the adoption of a “point” central bank policy rate.¹⁸

34. **Building an analytical capacity able to support a forward-looking approach to monetary policy is likely to be a multi-year effort.** Taking into account countries’ conditions, this effort may involve an initial phase of enhancing financial programming with adjacent analytical tools, and then a move towards macroeconomic modeling. This would particularly be the case when adopting the following sequence, starting from MT, then moving to EMT to reach eventually EMPA.

35. **Best practices related to the decision-making process and organization of the central bank will have to be tailored to the way monetary policy is actually implemented.** Progress in these “soft” areas can be swift. However, there would be no tangible benefit in moving in these areas ahead of progress achieved in the actual implementation of monetary policy. The risk would be to develop processes which are not well aligned with actual monetary policy implementation, potentially diverting scarce resources to this endeavor that could be used more effectively in other priority areas.

¹⁷ This would amount to using the “corridor” (i.e., the combination of a refinance standing facility with a deposit standing facility) as central bank policy rate.

¹⁸ See Laurens (2005) for a discussion on the mix of monetary instruments at different stages of money market development. Countries aspiring to adopt a two-pillar framework should have reached Level 2, and on their way to Level 3 of market development. See Appendix

Appendix I. Key Concepts

Broad monetary program (BMP). The BMP is the annual framework whereby broad macroeconomic objectives are set in term of fiscal, monetary and balance of payments. These broad parameters, consistent with an underlying inflation objective (and growth in some countries) and based on a statistical relationship over the medium term between money and the price level in the form of a money demand equation, provide projections of monetary aggregates.

Conventional monetary targeting (MT). Conventional monetary targeting is based on the financial programming framework, a simple model, an essential part of which is a demand for money function. It comprises a broad monetary program (BMP) and the reserve money program (RMP). The BMP is the annual framework whereby broad macroeconomic objectives are set in term of fiscal, monetary and balance of payments. A monetary target derived on the basis of assumptions with regard to the income velocity of money and real GDP growth, and a target rate for inflation. The RMP, derived from the BMP, is based on a statistical relationship between broad money and reserve money (the money multiplier), which provides an operational target (quarterly and monthly) to calibrate the monetary operations. The central bank conducts monetary policy in order to meet the targets for reserve money in the short term (at times within a band to absorb short-term liquidity shocks) with the aim to achieve the underlying inflation objective.

Enhanced Monetary Policy Analysis (EMPA). This way of operating a flexible monetary targeting regime retains a role for monetary indicators but with less importance than under EMT, by converting them from targets to reference ranges. Countries having the ability to develop complementary analysis to gauge the implications of deviations from monetary targets on inflation may move to this framework based on an enhanced monetary policy analysis (i.e., a two-pillar type framework. As monetary policy analysis centered on an inflation forecast takes center stage, monetary analysis evolved towards cross-checking economic analysis. However, several reasons can motivate retaining a role for monetary analysis as a way to safeguard the policy reaction to shocks to demand and inflation, including fiscal shocks, rather than moving to conventional inflation targeting where monetary aggregates play a limited role, if any. Key reasons include (i) uncertainties regarding forecasting tools and their calibration; (ii) weak macrofinancial building blocks for effective monetary policy, which may lead to large shocks to the economy and the balance sheet of the central bank, therefore preventing the central bank to commit in any credible way to “doing all that it takes” to achieve an inflation target within the predefined time horizon; (iii) retaining a cross checking role for monetary analysis in assessing the outlook for price stability from a medium to long-term perspective, particularly when faced with large semi-persistent exogenous supply shocks; and (iv) relevance of money for financial stability. This approach is relevant for central banks with a robust model-based analytical capacity.

Enhanced Monetary Targeting (EMT). This way of operating a flexible monetary targeting regime retains broad money as the intermediate target, with the addition of an assessment of the policy stance that also incorporates inputs from an enhanced monetary analysis. Reserve money is no longer the operating target; instead, monetary operations are

calibrated to allow a respond to liquidity shocks in a way which supports monetary policy transmission. Unlike conventional monetary targeting, the central bank should not try to achieve the RMP reserve money target. Rather, it would try to achieve the level of excess reserves that is needed to stabilizing short-term interest rates (i.e., ensure smooth liquidity conditions so that market rates movements reflect participant's expectations). Enhanced monetary analysis in the context of periodic reviews would aim at assessing whether slippages from the BMP's broad money targets call for a change in the stance of monetary policy.

Forward-looking monetary policy. In this paper forward-looking monetary policy refers to an approach to monetary policy making which uses information coming from new observations into the economic forecast that is used in the decision making process. When conducting a forward-looking monetary policy the central bank relies on statistical tools and forecasting techniques which attempt to incorporate changes to expectations coming from new observations in the assessment of the risks to price stability. This definition would thus be closer to the optimal decision procedure for monetary policy than the purely forward-looking one as discussed in the academic literature (i.e., Woodford, 2000), which often assimilates forward-looking with inflation targeting (IT). The concept of forward-looking process discussed in this paper is therefore broader than the commonly referred to in the IT literature. In this context, conventional monetary targeting, by assuming a stable money demand on the basis of relationships which are unable to take account of possible structural breaks, would be seen as backward looking by nature since any adjustment would be derived solely from past observations. Enhanced monetary targeting (EMT) and Enhanced monetary policy analysis (EMPA) would rather qualify as forward-looking monetary policy since: (i) the periodic reviews in the context of EMT incorporate some elements of a forward-looking approach to monetary policy as the desirability to adhere to the monetary program is assessed on the basis of information that goes beyond past observations; (ii) EMPA incorporates the key elements of a forward-looking approach to monetary policy.

Inflation targeting (IT). IT regimes have in common that a published numerical inflation target within a predefined policy horizon prevails over any other policy objective; it becomes the intermediate target. Policies should be set so that the inflation forecast credibly returns to target over the policy horizon, absent further shocks. Central banks that already enjoy a high level of credibility may miss the target without incurring credibility losses, provided the target misses can be explained in a credible manner. This may not be the case for central banks with low levels of credibility. Monetary policy is conducted in a market-based and transparent manner that fosters accountability. IT countries rely on a short-term interest rate as the operating target. Monetary policy decisions are communicated in terms of a more or less mechanical reaction to deviations of inflation forecasts (or expected future inflation) from the desired target. IT relies on a broader range of economic variables, indicators, and modeling capacities; it allows a forward looking and pre-emptive monetary policy. Following the GFC, most– if not all–IT central banks have adopted what has been termed as flexible IT, whereby the central bank implements monetary policy with the aim of keeping inflation near the target rate over the medium run; additional stabilization goals may also be pursued in the short-run, subject to the constraints that the overall policy stance is consistent with the

medium-run inflation target (see in particular Woodford, 2013, in *CEPR Is Inflation Targeting Dead? Central Banking after the Crisis*, page 76).

Inflation targeting lite (ITL). ITL countries float their exchange rate and announce an inflation target, but are not willing to maintain the inflation target as the foremost policy objective (Stone, 2003). ITL can be viewed as a transitional regime aimed at buying time for the implementation of the structural reforms needed for a single credible nominal anchor.

Nominal anchor. A nominal anchor is a nominal variable that policymakers use to tie down the price level. It reflects the monetary authorities' commitment to control the inflation generating process. Its role is, mainly, two-fold: (i) help promote price stability; and (ii) limit the time-inconsistency problem of discretionary monetary policy. A credible nominal anchor is important to control inflationary expectations and provide confidence in monetary policy whereby agents can distinguish between movements in relative prices (that are necessary for consumption and investment decision making) and those associated with the price level.

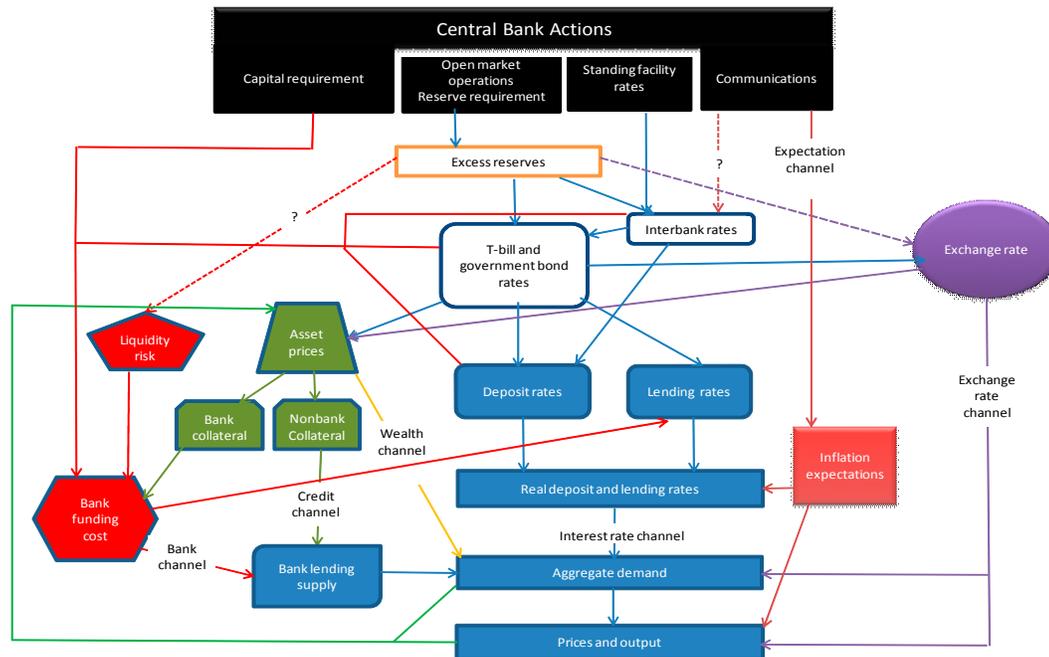
Reserve money program (RMP). The RMP, derived from the broad monetary program (BMP), is based on a statistical relationship between broad money and reserve money in the form of the money multiplier. This relationship provides an operational target (quarterly and monthly) to calibrate the monetary operations, whereby the central bank conducts monetary policy with the objective of meeting the targets for reserve money in the short term with the aim to achieve ultimate objective of price stability. The central bank may strive to achieve the reserve money target within a band to absorb some short-term liquidity shocks.

Transitional monetary regime. A transitional monetary regime combines elements of MT and IT, with a focus on analysis rather than a pre-set money rule. Transitional monetary regimes have developed in response to large exogenous shocks and a changing financial landscape due to financial liberalization and innovation, and leading to instability in money demand function. These changes have prompted countries to migrate to pro-active and increasingly forward-looking monetary policy in which there is flexibility with regards to money targets and central bank develop skills in monetary and economic analysis to better inform monetary policy decisions. Yet, moving to IT may not be possible until the central bank can make a clear and credible commitment to a single inflation objective. In a transitional regime the central bank is also allowing more of a role for the market to determine the exchange rate. There is therefore a need to incorporate the impact of increasing exchange rate flexibility into policy analysis, recognizing that as time goes on and as robust estimates of inflation are available, the exchange rate pass through may also decline allowing for a lesser role for central bank interventions in the foreign exchange market.

Appendix II. Transmission Channels of Monetary Policy

36. **A key element for effective monetary policy is a robust transmission mechanism through which policy actions affect aggregate demand and ultimately inflation.** Analysis of the transmission channels requires undertaking research on the basic relationships among variables of interest, including based money, broad money, interest rates, inflation, growth, money demand, the multiplier, and basic impulse response functions in a VAR setting. The nature, speed, and intensity of the transmission from the variables under central bank control (i.e., short-term interest rates or base money) to variables most directly affecting nonfinancial sector conditions (loan and deposit rates, asset prices) determine policy effectiveness, and the monetary instruments that can be used. A number of factors are at play: (i) the level of banking sector competition, (ii) the extent of access to alternative funding sources, (iii) the depth of financial markets, (iv) the extent of government involvement in financial markets, (v) the level of financial intermediation, (vi) the exchange rate regime, (vii) the degree of current and capital account openness, and (viii) the importance of financial markets developments in the behavioral decisions of economic agents. They influence the speed and intensity of the transmission channels; hence the extent to which monetary instruments can be effective in transmitting policy signals. A textbook perspective of all potential channels is displayed in Figure 4.

Figure 4. Transmission Channels



Source: Maehle (forthcoming)

37. **Monetary policy mainly works through interest rates and the exchange rate.**¹⁹

The central bank's ability to influence the economy, and the money supply that matter for the behavior of the nonfinancial private sector—broad money— stems from its monopoly over bank claims on the central bank (reserve balances), which in turn influences the money and foreign exchange markets on the broader set of interest rates and asset prices, all of these interrelated through arbitrage and competition for reserve balances. Monetary policy has an impact on the real economy provided that: (i) this arbitrage works: the interest and exchange rates need to be sufficiently flexible and market determined; and (ii) the impact of changes in interest and exchange rates on aggregate demand and inflation is sufficiently strong.

38. **The following “narrow” transmission channels have been identified in the literature, especially in countries with deep financial markets:**

- *Interest rate channel.* Monetary transmission through this channel—often regarded as the main one—refers to the effect of monetary policy on the level of interest rates in the economy, leading to changes in investment/savings and thus in aggregate demand. Predictability of the response of lending/deposit rates to changes in money market rates depends on the degree of competition in the banking sector, the extent of access to alternative domestic funding sources, and the depths of money and capital markets.
- *Exchange rate channel.* Monetary transmission through this channel occurs when changes in the monetary policy stance lead to changes in the exchange rate, affecting the relative demand for domestic and foreign goods and services. This channel does not exist under a peg regime, and works better with high level of exchange rate variability and high substitutability between domestic and foreign assets.
- *Asset price channel.* Monetary transmission through this channel occurs when changes monetary policy affects asset prices. In particular changes in the value of equity or collateral will in turn induce changes in consumption and investment. The main factor influencing the strength of this channel is the development of bond, equity, and real estate markets.
- *Availability of credit channel.* Monetary transmission through this channel occurs when monetary policy affects the quantity of available credit, regardless of (or in addition to) what happens to interest rates. This channel reflects how asymmetric information and the cost of enforcing contracts may create agency problems in markets. The financial condition of the banking system is an important factor influencing the strength of this channel.

¹⁹ This does not mean that the (narrow) “interest rate channel” dominates or is particularly strong, but that almost all of the transmission channels discussed in the literature work through interest rates or amplify the effect of changes in interest rates and other yields on real demand and supply.

- *Inflation expectations channel.* Inflation expectations are important for firms' price-setting behavior and wage formation. They are a measure of the public's confidence in the central bank to attain the inflation target. Inflation expectations above the central bank's target suggest that the public does not believe that the central bank will keep inflation in check. This may lead to a need to raise the policy rate more rapidly than would be otherwise the case.

Appendix III. When Does Conventional Monetary Targeting Remain Relevant?

39. **Conventional monetary targeting (i.e., retaining the reserve money program-RMP) is appropriate only for a sub-set of countries for which the broad monetary program (BMP) remains relevant.**

- *When does the BMP remain relevant?* The BMP is relevant: (i) for central banks which do not have robust inflation forecasting frameworks based on medium to long-term economic modeling; (ii) for countries subject to large, semi-persistent shocks to inflation. Under such conditions, a broad monetary aggregate provides monetary policy formulations and commitments with the longer term anchor that is needed under these circumstances.
- *When does the RMP become irrelevant, or even unhelpful?* The RMP becomes irrelevant when: (i) the central bank has a capacity to forecast and analyze short-term liquidity and monetary developments; (ii) reserve money is no longer subject to large and unexpected supply shocks originating from fiscal dominance, or non discretionary liquidity assistance to the banking sector (i.e., emergency liquidity assistance to weak banks, or automatic refinancing facilities in the context of directed credit programs). Under such circumstances the central bank can decide on the amount of liquidity it will provide, or withdraw from the market in order to achieve its objectives, and it can manage liquidity in a way supportive of the monetary policy transmission. Under such circumstances reliance on the RMP would make difficult the introduction of elements of forward-looking monetary policy as it could set hurdles in the efforts to develop monetary policy transmission.

40. **Conventional monetary targeting should be retained when the central bank faces severe constraints in monetary policy implementation, including:**

- *Lack of clarity about the objective of monetary policy.* A situation whereby the central bank is assigned several objectives (typically price stability and a developmental-type objective) should not necessarily lead to maintaining reliance on the RMP. However, this would be the case if such lack of clarity were to lead to an obligation for the central bank to provide credit to the economy, either directly or indirectly via the banking sector, hence potentially making it difficult for the central bank to retain a sufficient degree of control over its balance sheet. Under such circumstances, the RMP provides a framework to ensure that the objectives of the BMP can be achieved.
- *No formal separation between fiscal and monetary policy,* preventing the central bank from having a good control over its balance sheet. The RMP provides a framework to ensure that fiscal dominance will not lead to a loss of monetary control.
- *Very low level of financial intermediation,* leading to base money mainly made of currency, therefore leaving little scope for monetary policy. De facto, monetary policy has mainly to do with central bank's balance sheet management via the RMP.
- *Very limited analytical and statistical capacity* constraining the central bank to conduct the basic monetary analysis essential for enhanced monetary analysis.

APPENDIX IV. ROLE OF MONEY IN MONETARY POLICY: THE CONCEPTUAL DEBATE

41. **The debate about the role of money in monetary policy making is implicitly related to the question about the endogeneity vs. exogeneity status of the money supply from a conceptual (and theoretical) viewpoint.** The debate can be reduced to the diverging views between the post-Keynesian theorists – for whom endogenous money is a central component – and the monetarists arguing that money supply should be exogenous to control inflation. In Moore (1988)’s terminology the former would be seen as Horizontalists by assuming a perfectly elastic money supply function, whereas the latter rather seen as Verticalists (which would also include Neoclassical Synthesis Keynesians and New Keynesians to a large extent) who assume a perfectly inelastic money supply function.²⁰ Consequently in the former case the central bank would accommodate money demand at the exogenously set interest rate, while in the latter case the interest rate would be the result of the exogenous money supply determined by the central bank.

42. **Beyond the wording, this conceptual debate has policy implications as regards the stabilization of the economy.** If money supply is exogenous, money can only have a causal role in the process of inflation, reflecting that changes in the quantity of money in circulation will be associated with changes in the price level. By contrast, when money supply is endogenous, policies aiming at stabilizing inflation through a change in money supply can only be effective if they are able to influence aggregate demand via changes in money incomes of economic agents (Davidson, 2006).

43. **The evolution of the role of money in modern central banking can be analyzed against the background of this theoretical debate.** Evolving specificities of the economy – thereby impacting the features of money supply and demand for liquidity – has gradually led central bankers to adjust their policy strategy (and its implementation) through time reflecting developments in the literature. For example, it is widely recognized that if money supply is not perfectly inelastic, the central bank would tend to accommodate at least partially (possibly short-term) changes in agents’ demand for liquidity in order to stabilize market interest rates even if money supply is considered stable over time. In the same vein, changing conditions in the economy or structural changes in the functioning of the economy and financial markets – thereby increasing the likelihood of discrepancies between money supply and money demand – may erode the effectiveness of strict monetarist (or Verticalist) approach over time at the benefit of a policy allowing more discretionary adjustments.

44. **Economic history has shown that a strict application of both approaches has its own shortcomings.** On the one hand, accommodative approach suggested by Horizontalists (without proper analysis of risks to economic growth and price outlooks) may lead to negative economic outturns. Two striking examples (one with an independent central bank and another in the absence of central bank independence) can be recalled in this regard. The

²⁰ From this perspective, the main difference between monetarists and “mainstream” Keynesians would not be on the assumption of exogenous money (that they both agree with) but rather on the role of fiscal policy to explain macroeconomic outcomes. See the related discussion in Davidson (2006).

case with an independent central bank relates to market intervention by the Reichsbank in order to stabilize the exchange rate in early 1923 to overcome (then assumed temporary) adverse fiscal news, which proved eventually long-lasting. The example with a non-independent central bank is the accommodating policy approach pursued by the Federal Reserve between the onset of World War II and the 1951 Treasury-Federal Reserve Accord. In both cases, monetary policy led to high and volatile inflation regime.²¹ On the other hand, it is widely recognized that innovations in financial structure, products/instruments and regulation has altered the expected close relationship between the average annual rate growth of the money stock, and the average annual rate of increase of prices (Rudebusch (1998), Hauser and Brigden (2002) among others).²²

45. **The historical experiences have encouraged policymakers to adjust the conduct of monetary policy in a pragmatic manner oscillating between these two paradigms across time.** The pure monetarist (or more broadly the Verticalist) view has triumphed on the account of the evolution in the thinking on central banking, leading to growing criticisms by academics in the 1970s about political control over central banks which usually led to high inflation and an inefficient allocation of credit. Later on, this view was questioned during the 1980s in light of growing instability observed in the relationship between monetary aggregates and economic growth. The Federal Reserve was the first central bank to initiate a change as regards the monetary targeting which was followed by other central banks over time. Although the role of money has clearly diminished in terms of policy targets²³, it remains that in most industrialized countries monetary analysis keeps a key role in the analysis underlying the assessment of the monetary policy stance.

46. **As stated in Uhlig (2008) and Woodford (2008), some kind of paradox prevails today in the literature since “we are all monetarists now...” even if money has lost its prominent role in the monetary policy strategy.** This can be explained by a change in the status of money, moving from an explicit (intermediate or final) policy target to a prime indicator for forecasting inflation. This particular place that money has always occupied for the conduct of monetary policy (although with various degrees of importance) can be explained by at least three main intrinsic features as recalled in Masuch et al. (2003): (i) monetary aggregates can be useful proxies for variables not easily observable or only observable with time lags; (ii) money has an important structural role by nature in the transmission of monetary policy²⁴; and (iii) money is a well-defined indicator which may

²¹ For further details, see Durré and Smets (2013).

²² As recalled in Grant et al. (2004), the introduction of cash-saving technologies such as credit and debit cards as the growing network of automated teller machines (ATMs) contributed to a prolonged upward shift in narrow money velocity towards the end of the 20th century.

²³ Even the European Central Bank has abandoned the intermediate monetary aggregate targeting (then still followed by the Deutsche Bundesbank) at the benefit of a “two-pillar” strategy when adopting the euro.

²⁴ King (2002) also stresses that in case of imperfections in the financial sector (through borrowing and liquidity constraints) permitting changes in balance sheets affecting yields and spreads that are relevant for intertemporal behaviour of economic agents as regards consumption, saving, and investment decisions, the role of money and credit is reinforced.

serve as nominal anchor for the economy. Therefore, neglecting monetary dynamics would deprive the central bank of a valuable source of information

47. In recent decades, several elements have contributed to the renewed interest in the monetary analysis in all major central banks of industrialized countries.

- *First*, strengthening of both theoretical and empirical research has confirmed the role of money in the inflation dynamics in the long run.²⁵ Academic research has focused on new approaches or instruments to overcome the unstable velocity in monetary aggregates, without questioning the relevance of monetary analysis.²⁶
- *Second*, central banks have a monopoly for issuing their own liabilities, which allow a firm control of the money initially injected in the financial markets at least at the very short end. This point has been recalled by the GFC where an active use of the central bank's balance sheet proved to be a useful tool in a zero lower bound economic environment.²⁷
- *Third*, the recent emphasis placed on macro-prudential tools by policy makers, with the propensity to entrust this task to the central bank has led to a renewed interest for monetary analysis in a broad sense, notably – and admittedly not exclusively - through a careful scrutiny of the counterparts of monetary aggregates (Borio (2011)). This point was explicitly expressed in Mersch (2013) when stressing that: “[...] *the ECB's policy analysis for price developments can contribute to financial stability surveillance. Here, I have in mind our monetary analysis, which focuses on money and credit developments. Exaggerated dynamics in such aggregates can help identify dangerous trajectories that could threaten financial stability. We will have to reflect [...] on how best to have the broader financial stability assessment benefiting from tools or insights from the monetary analysis.*”

48. All these elements therefore explain that “all central banks monitor monetary developments closely but the approach to monetary analysis can differ [...]” as concluded in Pill (2001), which was strengthened by the GFC. As noted by Trichet (2013), “It is more largely accepted by academia that there is indeed information contained

²⁵ See among others Klöckers and Willeke (2001), Kimura (2001), Hauser and Brigden (2002), Masuch et al. (2003), Bank of England (2010) or Arestis et al. (2010).

²⁶ Of particular interest, see the discussion related to the estimation of “money-augmented” or “two-pillar Phillips curves” pioneered by Gerlach (2004) – and largely debated in Fischer et al. (2008) and Woodford (2008) among others – or, the developments of new measures derived from monetary aggregates (see for example Hancock (2003) or Grant et al. (2004).

²⁷ Durré and Pill (2012) argue for instance that, beyond the traditional portfolio-balance channel approach in the literature, the market substitution by central banks through an active use of their balance sheet (via changing composition and/or size) was equally important to stabilise the banking system. See also Yates (2003).

in money and credit dynamics that is important for monetary policy, even if the information is difficult to extract and decipher". The debate seems more about "...how to extract the pertinent information from monetary and financial data, and how to process this information in order to have the best informed monetary policy decisions".

49. In light of these considerations, the following conclusions can be drawn:

- *First, monetary analysis remains relevant for monetary policy.* The understanding of correlation between monetary aggregates and inflation dynamics in particular, must retain a role in the broad economic analysis surrounding the assessment of the monetary policy.
- *Second, monetary analysis is relevant for financial stability.* Monetary analysis contains useful information (possibly complemented by analysis of flow of funds in the economy and banking sector) which may contribute to the analysis of risks to financial stability.
- *Third, the status of money in the monetary policy strategy depends on the degree of financial markets sophistication,* which in turn affects the stability of the relationship between monetary aggregates and inflation dynamics from the short- to medium-term. Central banks operating in shallow financial markets could continue to rely on the information coming from monetary analysis as the main basis for the decision-making process, then downgrade the status of money to a leading indicator of inflation amid developments of financial and economic structures. This approach is even more appropriate if the analytical and statistical tools available to the central bank are limited in the initial phase of introducing forward looking monetary policy.

Appendix V. Guiding Principles for Monetary Policy Formulation

50. **Monetary policy is conducted in a changing economic environment involving a degree of uncertainty, which a forward-looking approach supported by an appropriate analytical capacity at the central bank can help address.** Monetary policy must absorb (and adapt to) the impact of shocks arising from major new macro- and/or micro-economic imbalances, while recognizing that central bank's assessment based on past economic relationships may be altered by structural changes in the economy. Therefore, analytical work that focuses on understanding the transmission of monetary policy actions to inflation outcomes is at the center of the forward-looking monetary policy framework. This explains that analytical work has always existed within central banks to allow developing an understanding of: (i) the linkages between monetary, financial, price growth and economic performance so as to calibrate the macroeconomic framework used for the monetary program when it is retained; (ii) the factors affecting price dynamics; and (iii) the interaction between the nominal and real variables, as well as of the monetary policy transmission mechanisms. Ultimately, the objective is to assess how a change in the policy instrument will impact the final objective of monetary policy. This may require concerted efforts to overcome possible statistical and methodological obstacles while addressing human resource constraints.²⁸

51. **The form and degree of sophistication of central bank analytical work will depend on the degree of maturity of its economic and research units, the importance of the statistical tool, the profile of its staff, and data quality and coverage.**²⁹ Central bank analytical work is usually more oriented toward applied/empirical rather than theoretical research as it aims to inform the monetary policy decision making process. For many theoretical issues academic research is often a useful source of information. However, sometimes theoretical research in universities does not cover all the areas of interest to the central bank. In such cases some theoretical research may be needed and indeed undertaken most likely by research units that have reached an advanced level of maturity.³⁰ However, in an environment of relatively less developed financial markets and analytical capacity at the central bank,³¹ starting with an economic analysis (focusing on short-term economic developments) may appear sufficient in first instance before moving to a comprehensive

²⁸ During early stages, enhancing cooperation with outside agencies involved in research on issues relevant to monetary policy can facilitate the buildup of in-house capacity, and help alleviate related resource constraints.

²⁹ See Appendix VIII for a discussion on data requirements for monetary policy.

³⁰ Among possible topics, one may mention theoretical models to explain the banks' behavior in relation to forming required reserves; potential tradeoffs with the dynamics of the money market.

³¹ In EMT the short-term analyses may be limited to the monetary and credit information in relatively high frequency (weekly or monthly) and macroeconomic variables in low frequency (e.g. on annual basis). By contrast, the move to EMPA requires the availability of macroeconomic variables in higher frequency (i.e., national accounts on quarterly basis and soft economic indicators on monthly basis).

analytical framework including long-term economic analyses, and setting policy scenarios (through a proper research function).

52. The consensus for structuring analytical work in a central bank leads to a distinction between economic analysis and research-oriented economic modeling.

- *Economic analysis* refers to short-term, recurrent analysis needed for monetary policy conduct and its assessment. It covers the analysis of financial, monetary, and economic indicators, ***with a view to determining the stance of monetary policy***. It is based on the assumption that the structural macroeconomic framework remains broadly unchanged. Economic analysis also covers the related operational issues.
- *Research-oriented economic modeling* refers to a theoretical or empirical endeavor to gain some distance from short-term events (i.e., improve understanding of the causes of changes), or test new equilibrium and their impact on the economy. The objective is to estimate structural models mostly ***to elaborate policy scenarios in presence of economic shocks***, with a view to beef up the discussion among the policy makers.

53. Over time, enhanced economic analysis may lead to a research function. Three main factors may justify having a proper research function alongside an economics function.

- *First*, it is important for a central bank to understand the economic environment, specifically by means of long-term fundamental analyses that regularly test the stability of the major macro- and microeconomic balances. That prevents the central bank from falling behind the curve, therefore giving the impression that it is a passive onlooker, rather than an institution that anticipates events.
- *Second*, the central bank cannot rely solely on academic research. Some practical issues relating to policy implementation are not covered by academic research, either because they are viewed as being one-off, or because they are considered to be issues of internal concern only (and/or not known outside the central bank).³² Therefore, central bank research must not be a substitute for academic research, but complementary to it to meet the needs of the central bank. To a certain extent, central bank research may compete with academic research on some issues by bringing to it the insider viewpoint. But again, in this case, this helps improve the economic debate.
- *Third*, high-quality research contributing to the external visibility of the central bank may also help enhance its credibility which eventually should improve the reputation of the institution through an appropriate communication.

³² The typical example is the absence of academic research on the money market and the operational framework of monetary policy before the GFC (except for a few papers for the United States and Europe produced by central bank researchers).

Appendix VI. Liquidity Management

Bridging Short- and Long-Term Liquidity Management

54. **Under an EMT-type two-pillar framework a monetary targeting-based strategy is combined with an interest rate focused daily implementation framework.** In such a context, providing sufficient flexibility to shift the focus of the day-to-day operations towards managing liquidity in a manner that helps stabilize short term interest rates requires that the monetary targets serve as longer term targets that not dictate, but only guide the longer term evolution of the daily operations.

55. **Two options can be considered to operationalize such a framework:** (i) Option 1: involved retaining reserve money as an indicative target beyond the short-term horizon of short-term monetary operations so as to constraint over time the volume of monetary operations on average. Short term interest rates are allowed to move within an interest rate corridor; and (ii) Option 2: focus solely on broad money as the intermediate target to guide interest rate setting, with no reserve money target. This allows further flexibility to steer short-term interbank market rates towards a point policy rate, within a floor or mid-point corridor system. Under either option, periodic reviews of the broad monetary program to incorporate inputs from economic analysis and modeling would allow assessing the need for adjusting the monetary targets, and/or the positioning of the interest rate corridor.

56. **The flexible reserve money targeting under Option 1 can be combined with an interest rate focused daily operational framework by:**

- Setting the reserve money targets on a longer term (quarterly) average basis, and possibly within a confidence interval/band.
- Lengthening the horizon of liquidity forecasting (one month, or better a full quarter) on a two-week rolling basis to steer liquidity towards the reserve money target.
- Over time, allowing short-term money market interest rates to drift within an interest rate corridor in response to longer term persistent changes in liquidity conditions. Under such a framework it would not be advisable to introduce a point policy rate.³³
- This option allows retaining reserve money as a target for external communication purposes and IMF conditionality. Loose adherence to the target provides the needed flexibility to stabilize short-term interest rates and improve policy signaling.

³³ See Appendix V for further elaboration.

57. **Under Option 2, dropping the reserve money target and relying on broad money as the intermediate target provides additional flexibility in liquidity management needed for having a point policy rate.**

Short-Term Liquidity Management: Operational Considerations³⁴

58. **Two-Pillar operational frameworks rely to a varying degree on both price- and quantity-based targets and signals.** The challenge is how to combine in practice those targets and signals to ensure that short-term liquidity management, the formulation of the medium-term monetary policy stance, and communication are mutually consistent, and aligned with the overall economic structure (including the state of the country's financial sector) as well as with the analytical and operational capacity at the central bank.

59. **Short-term liquidity management by the central bank must aim at stabilizing short-term interest rates, including for countries that rely on monetary aggregates for guiding policy formulations (such as under an EMT-type framework).** Although the longer term development of market interest rates is endogenous under monetary targeting, focusing short-term liquidity management on reserve money instead of banks' reserve balances and short-term interest rates is likely to result in unwarranted short-term interest rates volatility that muddles the policy signal and hamper its transmission to longer-term interest rates. Thus, containing the high-frequency (day-to-day) volatility of short-term interest rates is essential for anchoring the yield curve, strengthening the transmission along the yield curve to other rates, and enhancing monetary policy transmission more broadly.

60. **A number of configurations for short term liquidity management aimed at stabilizing short term interest rates are possible.** Besides improving short-term liquidity forecasting to fine-tune their open market operations (OMO), central banks can use standing lending and deposit facilities to form a corridor for the interbank rate to move within. Besides capping interbank rate volatility, interest corridors reduce the interest rate sensitivity of the commercial banks demand for central bank balances, and thus make the market less sensitive to liquidity forecasting errors. Central banks can also use other tools such as reserve requirement averaging provisions to flatten the demand for reserves. The configuration of a country's liquidity management system generally should evolve over time as country circumstances changes: there's no "best configuration" that fit all.

61. **How to operate an interest rate corridor system (with or without the use of some form of formal policy rate) is a critical issue for frontier countries.** In all corridor systems, a short-term (overnight) lending standing facility is combined with a deposit standing facility to providing a corridor for market rates. Central banks may also carry out OMOs to influence the level of the market rate within the corridor. The options available to

³⁴ This Appendix draws on Maehle (forthcoming).

the central bank differ based on its liquidity forecasting capabilities; the overall development of money markets; and the overall monetary policy framework.

62. **An important issue to consider when setting up an interest rate corridor relates to the suitability of introducing a formal policy rate.** Introducing a policy rate can help strengthen policy signaling and guide interbank rates. However, certain conditions have to be met for successful implementation.³⁵ In that regard, three configurations can be considered:

- *A corridor with no official central bank policy rate.* Such a framework may fit countries that rely heavily on reserve money as a near to medium-term operational target, but want to start transitioning towards an interest-rate based framework (i.e., countries relying on conventional monetary targeting). The lack of a policy rate to anchor market expectations may make it harder to stabilize interbank rates within the corridor. However, this configuration provides the flexibility to ensure that day-to-day (short-term) monetary operations are consistent with the (longer term) reserve money targets. This is because interbank rates are allowed to fluctuate within the corridor without being inconsistent with the stated (money-based) policy stance. Yet, persistent drifts under strict reserve money targeting should trigger a shift of the corridor in the same direction, and under flexible monetary targeting a reassessment of the targeted longer term reserve money path.
- *A floor system where the standing deposit facility rate serves as the target for interbank rates and as the official policy rate.* Such a system reduces the need for fine-tuning monetary operations (to steer market rates to the policy rate), making it attractive for countries with weak liquidity forecasting capacity and/or structural liquidity surpluses. However, floor systems also provide fewer incentives for banks to engage in interbank trading.
- *A mid-rate corridor system where the policy rate is an announced target for the interbank rate.* This also involves a commitment to use OMOs to steer interbank rates close to the target. Mid-rate corridor systems are more demanding to operate than floor systems: they require better liquidity forecasting frameworks, more frequent OMOs, and supporting measures such as reserve requirements with reserve averaging to properly steer interbank rates and contain volatility. However, they provide stronger incentives for interbank trading.

³⁵ In particular the central bank should successfully demonstrate its ability and willingness to consistently steer the interbank money market rate close to the policy rate.

APPENDIX VII. DATA REQUIREMENTS FOR MONETARY POLICY³⁶

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

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

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

66. **While NSO capacity is being built, the short-term policy need for high-frequency indicators may have to be met using central bank resources.** This can be undertaken either through central banks collecting and processing the needed data themselves, or contracting the NSO through an intra-governmental agreement. Any information the NSO collects that is infrequently published or not published at all can also be made available to the central bank on a timely basis via the interagency agreement, within the legal constraints covering national statistics.

67. **Current versus capital expenditure is a key distinction to keep in mind in marshalling the resources to build NSO institutional capacity for the principal macroeconomic and high-frequency indicators needed for monetary policymaking.** Capacity building needs to be two-pronged: securing national and donor resources for building human and nonhuman statistical capital, and securing the commitment of the home government to provide sufficient budget for current expenditure to retain staff and maintain facilities, as well as for human capital maintenance through training, TA, and on the job

³⁶ This Appendix draws on the IMF paper “Conditionality in Evolving Monetary Policy Regimes”.
<http://www.imf.org/external/pp/longres.aspx?id=4853> - <http://www.imf.org/external/np/sec/pr/2014/pr14148.htm>

experience. Fund TA focuses strongly on building human capital. While the Fund provides technical advice on the conduct of price surveys, it is not as active in providing TA on establishment and household surveys that underlie significant components of the national accounts and thus collaboration with other donors is key to enable countries to establish a robust statistical organization. Finally, the Fund needs to advocate for adequate budgetary support from the home government for at least the current expense of maintaining a robust statistical system to sustain hard fought gains in statistical capacity.

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