Inflation Targeting–Implications for IMF Conditionality
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IMF Conditionality in the Context of Inflation Targeting—The Case of Brazil
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Summing Up by the Acting Chairman
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INTERNATIONAL MONETARY FUND

Inflation Targeting: Implications for IMF Conditionality

Prepared by the Policy Development and Review Department

(In consultation with other departments)

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I. INTRODUCTION

1. There is growing consensus that medium-term price stability should be the primary objective of monetary policy. This orientation is increasingly being embodied in formal inflation targeting. After an early start in some industrial countries—New Zealand, Canada, the United Kingdom, Sweden, and others—there has been widening interest in inflation targeting as a framework for conducting monetary policy.[1] More recently, Brazil has adopted inflation targeting in the context of a Fund-supported program following the breakdown of the pegged exchange rate regime. These developments have raised a number of issues, notably whether the practice of inflation targeting calls for any modifications in the framework of Fund conditionality and program monitoring. This paper addresses this question.

2. Inflation targeting is a framework for conducting monetary policy under "constrained discretion".[2] While specific frameworks vary across countries in several respects,[3] there are four preconditions for successful inflation targeting. First, inflation targeting involves certain institutional mechanisms—notably operational ("instrument") independence of the central bank and various accountability and transparency features—to make the target credible. Second, it requires the absence of fiscal dominance.[4] Third, it is based on a reasonably good understanding (albeit not necessarily a formal model) of the inflation process and the monetary transmission mechanism. Fourth, it requires a considerable degree of exchange rate flexibility, although not necessarily a pure float with complete abstention from intervention.

3. This paper sets aside the important questions of whether, and under what circumstances, inflation targeting is an appropriate regime for a program country;[5] how inflation targeting itself should be implemented in any given country; and how possible

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[1] Among the developing and emerging market economies, Chile, the Czech Republic, Hungary, Israel and Poland have moved or are gradually moving to inflation targeting.

[2] Bernanke et al., 1999. See also Leiderman and Svensson (ed.) 1995, and Svensson, 1997

[3] Inflation targeting frameworks differ, for instance, in their target horizons, width of target ranges, and the use of escape clauses for the first-round effects of exogenous shocks; as well as methods and information used to forecast future inflation.

[4] Fiscal dominance refers to a situation in which monetary policy is constrained by the need to accommodate a given fiscal policy. An example is a situation in which the monetary authorities need to monetize a portion of public debt to ensure fiscal sustainability. In this situation, formal central bank independence is irrelevant. This is the assumption underlying the "unpleasant monetarist arithmetic" analyzed by Sargent and Wallace (1981).

[5] The applicability of inflation targeting to developing countries is discussed by Masson, Savastano, and Sharma (1997).

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shortcomings in a country's institutional arrangements underpinning inflation targeting should be dealt with in the context of a Fund-supported program. The paper takes as given the decision to proceed with a Fund-supported program in a country pursuing inflation targeting and assumes that the preconditions for inflation targeting are met. Against this background, the paper explores the operational implications of inflation targeting for monetary policy conditionality.

4. Section II briefly reviews the purposes of conditionality in general. Section III argues that, given the difference between the focus and purpose of conditionality on the one hand and a monetary policy framework on the other, traditional monetary policy conditionality is not inherently incompatible with inflation targeting. Traditional conditionality does not, however, do anything to enhance the credibility of an inflation targeting framework. Section IV explores an alternative approach to monetary policy conditionality, whereby the Fund's conditionality could complement the domestic accountability and transparency features of inflation targeting. Section V presents issues for discussion. The paper reflects comments and suggestions presented in an IMF seminar, which brought outside experts, from central banks and academic institutions, together with Fund staff to discuss experiences with inflation targeting and the implications for IMF conditionality.[6]

II. The Role of Conditionality

5. Monetary policy conditionality, like conditionality in other areas, has been shaped by the general principles governing the Fund's financial assistance to member countries. The Articles of Agreement require the Fund to "...adopt policies on the use of its general resources ... that will assist members to solve their balance of payments problems in a manner consistent with the provisions of [the] Agreement and that will establish adequate safeguards for the temporary use of the general resources of the Fund." (Article V, Section 3(a)).[7] The purpose of conditionality is to provide such safeguards by linking a

[6] The agenda of the seminar as well as a summary of the discussion will also be issued for the information of the Board.

[7] The word "conditionality" does not appear in the Articles of Agreement and the concept of conditionality has evolved in stages. The original Articles contained no explicit statement that the Fund had to adopt policies on the use of its resources. The First Amendment introduced into the Articles clear language that required the Fund to adopt such policies. The Second Amendment introduced particular references to the Fund's adoption of policies on "stand-by and similar arrangements" and "special policies for special balance-of-payments problems." Subsequently, in 1979, the Executive Board agreed to the text of the guidelines on conditionality for the use of the Fund's resources and for stand-by arrangements. The legal aspects of the development of Fund conditionality are discussed in Gold (1979); Guitián (1981) examines the evolution of Fund conditionality from an economic point of view.

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member's continued access to the Fund's financial resources to the implementation of agreed adjustment policies, thereby ensuring that the need for such financing is only temporary and the country will be able to repay the Fund.[8] At the same time, conditionality gives assurances to the borrowing member that it will have access to the IMF's financial resources under certain specified conditions.

6. Conditionality does not require detailed day-to-day monitoring of a country's macroeconomic policies. It does, however, require a mechanism for assessing whether policies are veering off track or need to be changed in response to unanticipated shocks, changes in economic relationships, or other new information. Performance criteria provide such a mechanism.[9] They can be interpreted as signaling devices that flag a possible need to correct a deviation of policies from the agreed program or modify the program in light of new information. Careful examination of these data in light of other available information, and assessment of policies on the basis of this examination is an essential part of program monitoring.

7. Another essential tool of conditionality is the review, which provides a framework for a general, forward-looking assessment of whether a program is on track. In the evolution of IMF conditionality, program monitoring initially relied exclusively on quantitative performance criteria for certain macroeconomic variables.[10] Over the years, however, reviews have become a standard device of program monitoring, given the increasing complexity of the issues addressed in Fund programs and the increasing range of areas in which forward-looking considerations are essential.

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[8] The need for official financing in the process of correcting an external imbalance is less obvious under floating than under fixed exchange rates. Under floating, the exchange rate could, in principle, be allowed to adjust fully to equilibrate the balance of payments. In practice, however, it may be advisable to limit the extent of exchange rate adjustment through official financing, including from the Fund. This is a reasonable policy response, for instance, in cases where full adjustment via the exchange rate would entail a contractionary effect much larger than warranted by the medium-term outlook, or where excessive depreciation in one member country could have detrimental systemic implications.

[9] See Lipschitz, 1996.

[10] The Guidelines on Conditionality of 1979, which govern conditionality under stand-by and extended arrangements, explicitly provide for reviews in cases "... where a member is unable to establish in advance one or more performance criteria for all or part of the program period...," or where "... an essential feature of the program cannot be formulated as a performance criterion at the beginning of a program year because of substantial uncertainties concerning major economic trends..."

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III. TRADITIONAL MONETARY POLICY CONDITIONALITY

8. Monitoring of monetary policy in Fund programs has traditionally relied on two performance criteria: a ceiling on the central bank's net domestic assets (NDA) and a floor on net international reserves (NIR).[11] Although historically linked to the Polak model of the late 1950's and the monetary approach to the balance of payments, this configuration of monetary performance criteria is sufficiently general to accommodate different exchange rate regimes as well as the rather eclectic theoretical underpinnings of the financial programming exercises that form the basis of Fund programs.[12] Reliance on NIR floors and NDA ceilings does not, therefore, presuppose a specific macroeconomic model, nor is it tied to a specific operating framework for monetary policy. In fact, few countries implementing IMF-supported adjustment programs use NDA as an operational target for monetary policy.[13] However, the usefulness of this framework does require that money demand be reasonably predictable at least a quarter or two in advance—a requirement that is significantly less stringent than stability of money demand in an econometric sense, but cannot be taken for granted.

9. The primary focus of the NIR/NDA performance criteria is external viability (see Appendix). In this context, the main role of the NIR performance criterion is to signal whether a program is likely to achieve its external objective,[14] while the ceiling on NDA seeks to ensure that this objective is not jeopardized by excessive credit expansion—which under fixed exchange rates is this ceiling's main purpose—or by sterilization of unprogrammed reserve losses. If NIR is close to the program baseline, the ceiling on NDA effectively limits base money expansion, thereby providing a simple, albeit crude,

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[11] Performance criteria for NIR and NDA of the central bank have been by far the most common. However, some programs, notably in transition countries, have included performance criteria on net foreign and domestic assets of the banking system, and a few have set performance criteria on NIR and base money.

[12] Financial programming exercises exploit various balance sheet identities that link monetary policy, fiscal policy, and the balance of payments to ensure that the program performance criteria are internally consistent.

[13] For a related discussion of the IMF's approach to macroeconomic stabilization and the rationale for specific performance criteria, see Mussa and Savastano, 1999.

[14] The role of NIR as an indicator of external sector developments clearly depends on the exchange rate regime. Under floating, NIR may change little and provide at best very limited information on external developments. Nevertheless, an NIR floor still serves a purpose because it limits the scope for large interventions in response to domestic or external shocks and—to the extent that the authorities are not prepared to tolerate wide exchange rate fluctuations—prompts an adjustment of monetary and/or fiscal policy.

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mechanism to prevent monetary expansion from putting additional pressure on the external balance and fuelling inflation. However, the asymmetry of conventional monetary performance criteria—with a floor but no ceiling on NIR—provides no automatic safeguards against excessive monetary expansion and inflationary pressure when the external position turns out stronger than expected. Therefore, in programs where disinflation is an important objective, and particularly when the NIR floor is set close to the program baseline, a ceiling on base money is used to guard against this risk. But even in such cases, instability in base money demand may render this framework ineffective in gearing monetary policy towards the achievement of inflation objectives.[15]

10. Under inflation targeting, the NIR/NDA performance criteria could continue to play their traditional role by limiting sterilized foreign exchange market intervention and base money expansion when the external position is weak.[16] By constraining the domestic component of base money growth, a ceiling on NDA would probably prevent large departures from inflation objectives, but it may well not provide adequate guidance to a monetary policy aimed at a more precise inflation target.

11. While the role of monetary policy conditionality in a typical Fund program does not require a close correspondence between a country's monetary policy framework and the framework of conditionality, reliance on NIR/NDA performance criteria nevertheless raises important questions: Does this form of conditionality give too little weight to program objectives other than the balance of payments? And could inflation performance be improved by bringing conditionality more closely into line with the monetary policy framework? If this could be achieved without weakening the safeguards related to the program's external objectives, an alternative form of monetary policy conditionality would be worth considering. The next section addresses this issue.

[15] Reviews of the experience with Fund-supported programs have shown that, for a variety of reasons, these programs have tended to be more successful in achieving external objectives than inflation objectives. See Schadler (ed.), 1995, and Phillips in Bredenkamp and Schadler (ed), 1999.

[16] Such safeguards are particularly important in circumstances where the authorities are predisposed to view any exchange market pressure as likely to be short-lived—an assessment that is difficult to make, but may be attractive in light of particular circumstances (including, perhaps, the political calendar). However, as noted above, the traditional configuration of monetary performance criteria—a floor on NIR and a ceiling on NDA—does not prevent intervention, rapid base money growth, and the resulting inflationary pressures when the external position is stronger than expected.

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IV. A Reviews-based Approach

12. Under inflation targeting, various transparency features are intended to hold the monetary authorities accountable in the courts of public and market opinion. If a reasonable way could be found to bring IMF program monitoring into line with these domestic accountability features, this could help improve program performance in achieving inflation objectives, strengthen program ownership, and reinforce the central bank's credibility.[17] It would also help avoid the confusion that could arise from focusing public attention on two different sets of constraints on monetary variables, even though, as argued above, each serves a different purpose. This becomes more important as the Fund is increasing transparency by encouraging members to publish various program documents.

13. Another equally important consideration is that the effectiveness of program monitoring may be increased by focussing on the variables that are viewed as particularly relevant to monetary policy formulation in the individual country.

14. These arguments suggest that it could be helpful if the Fund's conditionality and the self-policing aspects of inflation targeting could be used to reinforce each other.[18] Such an approach to monetary policy conditionality would, however, be suitable only for countries that broadly meet the preconditions for inflation targeting, including the requisite institutional framework, and have some track record demonstrating a commitment to achieving their inflation objectives. For countries that do not meet these conditions, or that need to undertake substantial external adjustment, or do not want to reinforce their commitment to inflation objectives by making it part of program conditionality, it may be more appropriate to stay with the traditional NIR/NDA conditionality. The appropriate form of conditionality for an individual country would need to be agreed between the authorities and the Fund on a case-by-case basis.

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[17] This idea is developed in Cottarelli and Giannini, 1998. It must also be acknowledged, however, that one cannot presume that the incorporation of Fund conditionality on the inflation target will always help reinforce the central bank's credibility. In fact, the opposite outcome (at least in its immediate effect) is far more likely in those cases in which the Fund decides to challenge the monetary policy stance of the central bank and to interrupt the program on the grounds that the inflation target is unlikely to be met. For the Fund's conditionality to have credibility, this would need to happen in some cases; over the longer period, if Fund conditionality on inflation targets were to establish a track record, its inclusion in future programs would strengthen the central bank's credibility.

[18] In this connection, a program could also entrench, as structural measures, stringent transparency and public accountability procedures, in which the principles underlying the Code of Good Practices on Transparency in Monetary and Financial Policy are central. As mentioned above, details of such measures are outside the scope of this paper.

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15. Domestic accountability for inflation targets takes two forms. There is an element of *ex post* accountability with regard to inflation outturns.[19] However, since these outturns reflect the impact of past rather than contemporaneous policy decisions and are influenced by many factors beyond the authorities' control, *ex ante* accountability and transparency with regard to the process of monetary policy making are also essential. Typically the authorities publish an inflation report focusing on the behavior of various indicator variables to highlight whether policies are on track to achieving inflation objectives. Such indicator variables often include monetary and credit aggregates, exchange rates, interest rate levels or differentials, the yield curve, and market measures of inflationary expectations. In addition, they may include various indicators of economic activity (e.g., industrial production, retail sales, capacity utilization) and labor market conditions (e.g., wages, unemployment, employment growth, participation rates).[20]

16. By the same logic, if IMF conditionality were to build on the accountability features of inflation targeting itself, it could not rely solely on *ex post* monitoring of inflation outturns: while these outturns are clearly relevant and need to be monitored, the lags in the effect of monetary policy on inflation are typically too long for such backward-looking monitoring alone to provide an effective lever to bring about timely corrections of inappropriate policies. Given these lags, inflation outturns could, over much of the life of a program, be a reflection mainly of the monetary policies pursued prior to the program's adoption.[21] Considerable emphasis would therefore need to be given to *ex ante* accountability, based on an assessment of prospective future inflation, although this would generally be combined with the monitoring of current inflation, as is the case in most countries practicing inflation targeting.

17. In assessing inflation prospects, it would not be necessary—nor, given staff resource constraints, even remotely possible—for the Fund to scrutinize all information pertaining to day-to-day monetary policy decisions: the Fund could not and should not be involved in the

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[19] Examples of formalized accountability for inflation outturns are New Zealand and the United Kingdom. In New Zealand, the Reserve Bank Act holds the Governor personally accountable for achieving the inflation target and he can be dismissed if the Treasurer or the Reserve Bank's Board of Governors believe his performance has been inadequate. In the United Kingdom (since 1997), the Governor of the Bank of England is required to send an open letter to the Chancellor of the Exchequer explaining any deviation of inflation from target exceeding 1 percentage point and indicating corrective action.

[20] See for instance Bank of England, *Inflation Report* (various issues).

[21] In industrial countries these lags are typically estimated at 18 months to 2 years. In some emerging market countries, much shorter lags have been estimated; these may mainly reflect a volatile environment with weak policy credibility in which expectations are highly sensitive to current monetary policy actions.

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fine-tuning of monetary policy in pursuit of an inflation target. However, when key indicators suggest that on current policies the outlook for inflation deviates *significantly* from the inflation target, the Fund staff would need to understand the reasons, and when this deviation was large enough to pose a threat to the program's objectives, the Fund would need to have the ability to interrupt a program. Nonetheless, the intention would be that, within a comparatively broad range, the central bank should have the latitude to conduct monetary policy without micro-management by the Fund.

18. The foregoing discussion suggests that attuning monetary policy conditionality more closely to an inflation targeting framework would to some extent be country-specific regarding the kind of information viewed as relevant to forecasting inflation and assessing the appropriateness of the monetary policy stance. Moreover, in most instances at least some, if not most, of the variables considered would be beyond the control of the authorities and could therefore not be used as performance criteria. Under these conditions, it seems difficult to retain the parsimony of the traditional approach to monetary policy conditionality, which relies on performance criteria for just two monetary variables.

19. The alternative approach to monetary policy conditionality would consist of two elements. One element would be the traditional performance criterion for NIR to reinforce the country's commitment to a flexible exchange rate policy; this would ensure that the Fund's resources are used to support the adjustment needed to bring about a sustainable external position and not wasted on fruitless intervention. The floor on NIR would generally be set close to the program baseline. If, however, an appreciable margin for intervention were deemed desirable, it would have to be accompanied by a mechanism to ensure a tightening of monetary conditions when substantial intervention occurred. This could be a simple limit on the scope for sterilization, for instance an explicit feedback rule from intervention to official interest rates, or the traditional ceiling on NDA.

20. The second element of this approach would be reviews. If an arrangement included general reviews at quarterly frequency, the original program documentation would specify that these reviews include an assessment of monetary policy in the context of the inflation targeting framework; if the arrangement envisaged less frequent general reviews, the documentation would add quarterly reviews focussed only on monetary policy. Either way, these quarterly reviews would be required to assess monetary policy against the background of the most recent inflation outcome and the inflation outlook in light of a set of indicators.[22] The program would specify a quarterly inflation path consistent with the authorities' inflation targets, current and projected inflation would be compared with these targets, and agreement

[22] Of course, the expectation would be that the authorities continue to adjust polices in a timely manner and would not need to wait for a review before adjusting their policy instruments. In these circumstances, monetary policy would remain on track and, assuming there is adequate evidence supporting this assessment, a monetary policy review would not necessarily require a mission.

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on specific remedial action—in most cases presumably an increase in interest rates—would be expected whenever the outlook suggested that future inflation objectives were likely to be missed by a pre-specified margin. It should be noted that, when quarterly reviews focus solely on monetary policy, it should be possible to complete them on a lapse-of-time basis provided that the authorities are either expected to meet their inflation target or have already taken adequate remedial action in response to the assessment that this target is at risk.

21. Nevertheless, agreement on monetary policy would be a necessary condition for completion of the reviews, and reviews would have to be completed by the Board before the country could continue making purchases. This possibility of program interruption is essential; it ensures that the Fund can delay the resumption of access to its resources until the Board is satisfied that policies are consistent with the program's objectives.

22. Formal assessments of monetary policy would be complemented by more frequent consultations with the staff. These consultations would focus on the same indicators that form the basis for the reviews of monetary policy and could take place either at regular intervals—e.g., monthly—synchronized with the authorities' own periodic reassessments of monetary policy within the inflation targeting framework, or as requested by the authorities or the staff.

23. Although an assessment of monetary policy during reviews need not be confined to a narrow set of variables, it is important to define a set of indicators on which such an assessment would *primarily* be based. Consistent with the view that conditionality should guard against serious deviations of monetary policy but avoid micro-management, the choice of indicators should be as parsimonious as possible, including, in addition to recent inflation outcomes, a few indicators of future inflation. However, this approach would require at least broad agreement between the staff and the authorities on the appropriate monetary policy reaction to a range of possible eventualities.

24. In the cases in which there are credible independent forecasts of inflation, as reflected for instance in a consensus forecast, or in which market expectations of inflation can be discerned from an efficient indexed bond market, such a measure of expected inflation could be a particularly useful indicator of future inflation, as it would indirectly incorporate most, if not all, of the information that could be used in an independent inflation forecast by the staff. An official inflation forecast by the central bank, while likely incorporating more information than is available to outsiders, would not provide an independent check on whether policies are on track: such a forecast is part and parcel of policy formulation under inflation targeting. However, the basis on which the authorities arrive at their inflation forecast would be a key element in the staff's discussions with the authorities in the context of reviews. In cases in which independent measures of expected inflation do not exist or are less reliable, the selection of indicators could a small subset of the variables tracked by the central bank—for example, the exchange rate, a monetary aggregate, and some index of activity (in addition to current inflation).

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25. It is important to consider how this approach to monetary policy conditionality would differ from the current one based solely on NIR/NDA performance criteria. By combining safeguards on the program's external objectives—an NIR performance criterion and constraints on sterilized intervention—with indicator-based reviews to monitor inflation targeting, it would entail, in principle, a strengthening of monetary policy conditionality. It would place greater weight on inflation objectives than traditional monetary policy conditionality, with the possibility of delaying the completion of a review if monetary policy continues on a course that, in the staff's view, is inconsistent with the authorities' inflation target. This approach could therefore be used to enhance the credibility of the monetary policy framework and underpin stronger performance in achieving the inflation objectives of the program.

26. Reliance on broader, albeit indicator-based, assessments of monetary policy during reviews and consultations would also usher in greater flexibility and permit conditionality to be linked more closely to variables that are the most relevant to the monetary policy framework. This flexibility comes, however, at a price, both for the Fund and the authorities. For the Fund, the approach would likely entail more comprehensive and detailed assessments of monetary policy than the rather crude but parsimonious traditional framework—although this difference should not be overstated, since even under the traditional approach the staff does considerable work assessing the stance of monetary policy in light of various types of information. For the authorities, it could mean less-clearly-defined assurances of continued access to the Fund's financing than the simple NIR/NDA mechanism.

27. This reviews-based approach may also be compared with other hypothetical alternatives, some of which were suggested by outside participants in the seminar. One alternative would be to negotiate—and set a formal performance criterion on—an explicit central bank reaction function, specifying the amount by which the central bank would adjust a policy-determined interest rate in response to key monetary indicators. While in the reviews-based approach some sort of reaction function—requiring an interest rate increase if expected inflation is significantly above target—would implicitly need to lie behind the staff's assessment of monetary policy, formalizing it as a performance criterion implies a more mechanistic approach to inflation targeting than is favored by the staff.

28. Another variant would be an approach focusing on ensuring that the authorities have appropriate models in place for forecasting inflation rather than examining actual policies. Of course, in the reviews-based approach, discussions of the forecasting framework would typically be an important element of the staff's policy discussions with the authorities. But this would need to complement, not substitute for, an assessment of the stance of monetary policy in relation to the economic situation.

29. A third approach suggested in the seminar would be for the Fund to derive its own inflation forecasts independent of those of the authorities; these forecasts would then be published and made the basis for conditionality. This would be a major departure from the Fund's present approach, where the staff and the authorities seek to arrive at a common view of the economic situation. To be credible, a completely independent forecast by the Fund

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would require a greater commitment of staff resources than is currently available. Nor does staff believe that such an adversarial process would be advisable.

V. Issues for Discussion

30. Directors may wish to address the following questions:

- Do Directors agree that inflation targeting can be accommodated within the existing structure of Fund-supported programs, including the traditional structure of conditionality?

- The paper has presented an alternative approach to conditionality under inflation targeting incorporating program reviews focusing on recent inflation outturns together with indicators of future inflation. Do Directors see merit in this alternative framework compared with maintaining the existing structure of conditionality? What are the advantages and disadvantages of this alternative approach?

- If the reviews-based approach is adopted as an acceptable form of conditionality, on what basis should it be decided whether an individual program should incorporate this approach or more traditional conditionality? Do Directors agree that this choice should be made on a case-by-case basis?

- Do Directors agree that, regardless of whether the traditional framework for conditionality were maintained or replaced with the review-based approach, safeguarding the Fund's resources would require maintaining a floor on NIR? Do Directors agree that, in cases where this floor allowed a margin for unprogrammed foreign exchange sales, some mechanisms would be needed to limit sterilization?

- How do Directors see the staff proceeding on this issue? Should programs be allowed to set monetary policy conditionality mechanisms along the lines of the review-based approach described, subject to review after a period of experimentation? Or is further consideration of this general approach needed?

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Traditional Performance Criteria: The Role of the NIR/NDA Mechanism

31. The NIR/NDA performance criteria in Fund programs can be seen as a signaling mechanism that sounds an alarm when a program is in danger of going seriously off track or when it needs to be modified to safeguard the balance of payments objective and the resources of the Fund.

32. The following example illustrates the signaling role of the NIR/NDA performance criteria. Suppose that, at a specified test date, NIR turns out above the floor while NDA is above the ceiling. A number of alternative—not mutually exclusive—inferences are possible: the staff and the authorities may have got the parameters of the money demand equation wrong, or the equation may be unstable over time; real GDP or prices, which are arguments in the money demand equation, may be above their projection paths; the NIR floor may have allowed considerable margin for intervention and the large increase in NDA may be indicating that the effects of such intervention on domestic monetary conditions were sterilized; or money may indeed be increasing at a rate much faster than envisaged with the external effects offset by (a possibly temporary) positive terms-of-trade or capital-account shock. The recommended policy response—whether to take action to bring NDA back on track or to accommodate the deviation and adjust the performance criterion—depends on an explicit assessment of the causes of the deviation, including whether they are temporary or permanent. The nonobservance of a performance criterion forces such an assessment without prejudging the outcome.

33. The NDA ceiling and the NIR floor usually incorporate margins for deviation from the baseline projections of these variables; therefore the mechanism will only pick up significant departures from the envisaged program path (that threaten the core objectives of the program) and should not be seen as a policy framework for achieving a closely specified inflation objective—this is left to the authorities' internal framework for the conduct of monetary policy. An inflation targeting framework does not, however, obviate the need for conditionality that safeguards the external objectives of the program.

34. Consider the example of a country, following an inflation-targeting regime, that is hit by an exogenous loss of confidence in its currency. At a given interest rate there would be downward pressure on the value of its currency. To the extent that (a) the problem is seen as temporary, and (b) the authorities seek to limit an incipient depreciation because of its influence on inflation, the authorities may regard sterilized intervention as the appropriate first reaction. In an inflation-targeting regime without NDA or NIR performance criteria, and with exchange rates and money as arguments in the inflation equation, the authorities may be able, at least for a short time, to run NIR down to a relatively low level and to sterilize the monetary effects by increasing NDA. With only an NIR floor as a constraint, sterilized intervention could still go quite far, unless the NIR floor is set high enough to preclude significant intervention. But the inclusion of an NDA ceiling would establish, separately, a

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limit on sterilized intervention that could complement the NIR floor. Thus the NIR/NDA mechanism sets off warning signals when reserves fall too low or when there is large-scale sterilization of unprogrammed sales of foreign exchange.

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IMF Conditionality in the Context of Inflation Targeting: The Case of Brazil

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I. Introduction

1. Shortly after adopting a floating exchange rate regime in mid-January 1999, the Brazilian authorities indicated their intention to put in place as rapidly as possible a formal inflation targeting framework. In the months that followed, the inflation targeting framework was implemented, based on a careful and well-organized plan to meet the particular institutional, economic and financial market circumstances of Brazil. This included consultations and discussions with other central banks that have experience with inflation targeting,[1] analytical and empirical work to ascertain key macroeconomic relations in the Brazilian economy, and several actions to ensure an institutional and operational framework suitable for an effective monetary policy under inflation targeting.

2. This paper describes the process of establishing an inflation targeting framework in Brazil and some of the initial results; reviews the monetary policy tools of the Brazilian Central Bank (BCB) and some of the analytical models the BCB has been using in support of its decision making; discusses options for adapting IMF conditionality to inflation targeting in the case of Brazil; and offers some issues for further discussion.

II. Establishing an Inflation Targeting Framework for Brazil

3. In June 1999, the President of Brazil issued a decree[2] formally adopting an inflation targeting framework as the guide for monetary policy. Key points in this decree were:

- The inflation targets will be established based on one of the already existing price indices, with the specific index to be selected subsequently.
- The inflation targets as well as the tolerance intervals will be set by the National Monetary Council (NMC) on the basis of a proposal by the Minister of Finance.
- Inflation targets for the years 1999, 2000, and 2001 will be set no later that June 30, 1999; for the year 2002 and subsequent years, targets will be set no later than June 30, two years in advance.
- The BCB is given the full responsibility to implement the policies necessary to achieve the targets.
- The price index to be adopted for the purpose of inflation targeting will be chosen by the NMC on the basis of a proposal by the Minister of Finance.

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[1] This included, among others, a three-day seminar in Rio de Janeiro in May 1999, organized by the Brazilian Central Bank and MAE, and with the participation of central bank staff from Australia, Canada, Chile, Israel, Mexico, New Zealand, Sweden, the United Kingdom, and the United States.

[2] Decree No. 3088 of June 21, 1999.

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- The targets will be considered to have been met when the observed accumulated inflation during a given calendar year (measured on the basis of variations in the price index adopted for these purposes) falls within the tolerance intervals.
- If the targets are breached, the President of the BCB will need to issue an open letter addressed to the Minister of Finance explaining the causes of the breach, the measures to be adopted to ensure that inflation returns to the tolerated levels, and the period of time that will be needed for these measures to have an effect.
- The BCB will issue a quarterly inflation report to inform on the performance of the inflation targeting framework, the results of the monetary policy actions, and the future inflation perspectives.

4. In general, the overall framework for inflation targeting that was established in Brazil resembles that of other inflation targeting countries, but includes various unique features to *reflect important Brazil-specific factors.*

5. In choosing the specific indicator for the inflation target, the Brazilian authorities selected the ***broadest available consumer price index*** (IPCA).[3] The IPCA seemed preferable to an indicator of core inflation for two reasons. First, there are already a relatively large number of inflation indices available that are collected regularly by different institutions, which would make it difficult to convince the public of the need for an additional one. Second, selecting a well-established indicator would increase transparency and avoid possible accusations of trying to manipulate measured inflation. A main disadvantage of choosing a consumer price index like the IPCA is that it does not distinguish between core inflation and "special effects," like those resulting from changes in administered prices.

6. In selecting the ***specific targets and tolerance intervals for inflation***, the Brazilian authorities decided to use symmetric bands with relatively wide tolerance intervals. The specific targets were defined as shown in Table 1.

Table 1. Targets for Accumulated Inflation During the Year (in percent)

Year	Lower Bound	Target Path	Upper Bound
1999	6	8	10
2000	4	6	8
2001	2	4	6

7. Reliance on a relatively broad index instead of a more stable core index seems to justify the selection of fairly large bands (+/- 2 percentage points around the target path).

[3] The IPCA covers nine metropolitan areas (Rio de Janeiro, São Paulo, Porto Alegre, Belo Horizonte, Recife, Belém, Fortaleza, Salvador and Curitiba), plus the city of Goiânia and the Federal District. It covers families with income between 1 and 40 minimum wages, and is thus considered the broadest consumer price index available, both in terms of geographic coverage and coverage of income groups.

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While, initially, it was feared that the symmetry of the band could be interpreted to mean that the BCB would just aim to stay within the upper bound, the BCB has made it clear that it is aiming for the target path (i.e., the center of the band). Accumulated IPCA inflation in the year to November 1999 amounts to 8.3 percent, notwithstanding the depreciation of the *Real* from about R$1.20 per U.S. dollar in January to R$1.85 per U.S. dollar now, and several rounds of domestic oil price increases.

8. The issue of ***central bank independence*** was discussed in the context of establishing the inflation targeting framework, but there are different aspects that still need to be addressed. *De facto*, but not *de jure*, the BCB is fairly independent, and it has been given a completely free hand in pursuing its inflation objectives. Also, under the current BCB board, which has staked its professional reputation on the success of inflation targeting, there is no doubt that the BCB wants to make the framework work. However, Brazil has traditionally been a country of ***"fiscal dominance,"*** which, although reduced now, is still present. A general issue that arises in this context is whether the BCB would hesitate to raise interest rates for fiscal reasons (e.g., public debt sustainability considerations), although it would need to do so to contain inflation.

9. In the context of inflation targeting, the BCB has significantly enhanced its ***communication with the public***, so as to increase accountability and transparency. In addition to publishing its monthly market surveys, the BCB now publishes (with a 15-day delay) detailed minutes of its Monetary Policy Committee (COPOM)[4] meetings, and issues quarterly inflation reports (the second of which was published at end-September, 1999).

III. Inflation Targeting—Policy Tools and Models for Decision Making

10. On a day-to-day basis, the BCB implements monetary policy mainly through open market operations so as to achieve a daily operating target for an (overnight) inter-bank interest rate (called the "SELIC" rate); this interest rate operating target is set mainly with a view to the inflation target. To guide day-to-day operations in the market, the BCB has to decide when preemptive policy action is necessary, how strong it should be, and whether monetary policy instruments other than the interest rate should be used. This requires an explicit policy strategy that is consistent with the lags between adjustments in the monetary policy instruments and their effects on inflation and output.

11. In this context, the BCB's Research Department has developed three main sets of tools to help in decision making. These are various ***simple structural models*** of the transmission mechanism of monetary policy to prices, ***nonstructural time series models*** (on

[4] The COPOM consists of the BCB president and the BCB board members (all of whom have voting rights), and selected BCB department directors (who are nonvoting members). COPOM decisions are taken by majority vote. Regular COPOM meetings are held every five weeks, but extraordinary meetings may be called at any time.

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the basis of VAR, ARIMA, or leading indicator approaches) that are mainly used for short-term forecasts, and ***surveys of market expectations of inflation***, economic growth and other relevant variables.

12. The BCB's ***simple structural models,*** which use quarterly data, capture the main channels of the transmission of monetary policy, the intensity of the transmission, and the transmission lags. An advantage of these models is that they provide an explicit parametric link between policy tools and inflation that is based on economic theory; a disadvantage is that they provide a somewhat rigid and simplified framework, which may disregard many important variables that shape inflation and inflationary expectations. The BCB's simple structural models consider two main transmission channels: a ***direct channel***, where interest rates affect the nominal exchange rate, which in turn affects the inflation rate; and an ***indirect channel***, where, by affecting the output gap, the interest rate affects the inflation rate with a lag. Given a fairly small number of relevant quarterly observations, the degrees of freedom of these structural models are limited, a fact that makes it difficult to include many more explanatory variables in the equation. Three basic scenarios using these models were published in the BCB's second Inflation Report and are replicated in Table 2 below.

Table 2. Scenarios for the Year 2000 from the BCB Inflation Report (in percent)

	Selic Assumption	IPCA Inflation	GDP growth
Neutral scenario	19.0	4.6	3.2
Pessimistic scenario	23.0	4.5	2.3
Optimistic scenario	12.3	4.8	5.0

Source: BCB, *Relatório de Inflação* (September 1999).

13. While the results are not directly comparable across the three different scenarios because they rely on different assumptions for international yield spreads and result in different exchange rate outcomes, they suggest that, at end-September, the BCB considered the potential threat to its year 2000 inflation target to be minimal under a wide range of interest rate assumptions. However, a more recent simulation for the November COPOM meeting shows that a significant adjustment in administered domestic prices (e.g., due to continued increases in international oil prices) would compromise the inflation targets for 2000-01 under current policies.

14. The BCB's ***nonstructural time series models*** for predicting inflation largely aim at gauging latent short-term inflationary pressures and the formation of inflation expectations. These models use monthly data. A main advantage of these models is that they provide a flexible analytical tool; a main disadvantage is that they do not provide a policy reaction function, and are not based on economic theory. In this context, the BCB has worked with nonstructural vector autoregressive (VAR) models and autoregressive moving average (ARMA) time-series models, as well as different filter techniques and advanced probabilistic methods (e.g., Markov switching models) that are applied in a time-series context. In

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particular the VAR models provide an alternative short-term forecast for the inflation rate and permit a consistency check with the forecasts resulting from the structural models.

15. A general result of these models is that transmission lags in the Brazilian economy are fairly short (6–9 months), compared to other (industrial) countries using an inflation targeting framework. Also, on the basis of these models, the BCB has compiled a preliminary list of about 25 variables that may be considered useful leading indicators of inflation for three different time horizons: short term (1–3 months); medium term (4–6 months), and long-term (7–12 months). Further tests with these and other variables are ongoing.

16. The BCB has tried to integrate the various alternative structural models for the transmission mechanism, the various short-term models of inflation forecasting, and the assessments behind the probability intervals for inflation. By doing so, it has been able to obtain different outputs including: (i) inflation forecasts (central path with confidence intervals) with definitions of a measure of dispersion (variance) and of risks (asymmetries);[5] (ii) forecasts for output; (iii) a trajectory for interest rates (both, nominal and real) resulting from the various predetermined reaction functions; and (iv) dynamic simulations of exogenous shocks. External demand, and domestic demand, and aggregate supply shocks are seen as the most relevant for Brazil. Given the aggregate nature of the simple structural models, the stylization of the shocks require careful work to reflect their intensity and timing in the simulations.

17. The BCB is well aware of the ***limitations of its models*** and the estimates and forecasts that they generate, particularly since the Brazilian economy underwent a number of substantial structural changes in the last several years, so that suitable time series are often only fairly short. Hence, alternative sources, such as market surveys and forecasts, are taken into account as well. The BCB conducts weekly surveys of market expectations, and publishes the results thereof.

IV. Adapting IMF Conditionality to Inflation Targeting

18. Since December 1998, Brazil's economic program has been supported by a 3-year Stand-By Arrangement (SBA) with the Fund. The program has relied on the conventional quantitative performance criteria. This has included a floor on net international reserves (NIR) and a ceiling on net domestic assets (NDA) of the BCB; the exact specification of these criteria was changed slightly from review to review. The NIR floor is meant to indicate whether the program is likely to achieve its external objectives and to safeguard the Fund's resources. The ceiling on NDA seeks to ensure that these objectives and the inflation objective are not jeopardized by excessive credit expansion or sterilization of unprogrammed NIR losses. In general, this conventional framework provides few safeguards against an

[5] These provide the basis for the various fan charts published in the quarterly inflation reports of the BCB.

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excessive monetary expansion and inflationary pressure that could result when the external position turns out stronger than expected. Hence, the conventional quantitative performance criteria emphasize the external objectives of a program; they do not adequately safeguard inflation objectives.

19. The key issue then in adapting Fund programs to inflation targeting would be to tailor monetary conditionality so as to "take the inflation objective more seriously" while, at the same time, retaining the necessary performance criteria to ensure achievement of the external objectives of the program and safeguard the Fund's resources.

V. The Fourth Review of the Brazil Program: A Transition Arrangement

20. The November 1999 (fourth) review of the Brazil program contained what may be considered a "transition arrangement" between the traditional "NIR/NDA framework" of conditionality, and a possible future framework that is more geared toward safeguarding also the inflation objective. In particular, for November 1999 to June 2000, it retained an NIR floor (performance criterion) that allowed for a total of up to US$2.0 billion to US$2.5 billion of fully sterilized intervention relative to the program's NIR baseline, and an indicative ceiling on the NDA that is set so as to leave room for short-term interest rates to be managed flexibly and in line with the BCB's inflation objectives.

21. As an "innovation," the fourth review included a formal *consultation band* for inflation, based on the government's announced inflation targets for the IPCA.[6] Specifically, there were quarterly targets as well as inner and outer bands for the 12-month IPCA inflation rate for December 1999 and the year 2000. In this context, the central 12-month inflation path was programmed to decline by 0.5 percentage points each quarter, from 8.0 percent in December 1999 to 6 percent in December 2000. The outer band was established with a tolerance interval of +/-2 percentage points around this path; the inner band was established with a tolerance interval of +/-1 percentage point around this path. Accordingly, the BCB will discuss with the Fund staff about the appropriate policy response should the 12-month rate of IPCA inflation exceed the upper limit of the inner band. Should the 12-month rate of IPCA inflation exceed the upper limit of the outer band, the authorities will complete a

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[6] *The full list of performance criteria (PC) and indicative targets (IT) for the fourth review of* the program (November 1999), included two *fiscal targets* (a floor for the primary surplus of the consolidated public sector (PC), and a ceiling on the stock of net debt of the consolidated public sector (IT)); several *external sector targets* (a ceiling on the stock of external public debt (PC); a ceiling on the stock of short-term external debt (IT); a ceiling on the stock of publicly guaranteed private sector external debt outstanding (PC); a floor on NIR (PC), and PCs on BCB exposure (or better "nonexposure") in foreign exchange forward and futures markets); and two *monetary sector targets* (a ceiling on the NDA of the BCB (IT), and, for the first time, a consultation band for the 12-month rate of the IPCA (IT)).

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consultation with the IMF Board on their proposed policy response before requesting further purchases under the program.

VI. Strengthening Monetary Conditionality in Brazil—Main Issues

22. To strengthen the monetary conditionality framework, and pending Board consideration of the more general approach for inflation targeting program countries, the staff has envisaged working on the basis of the following principles for the forthcoming (fifth) review of the Brazil program.

- Reliance on an NIR floor is crucial to safeguard external viability and Fund resources.
- The NIR floor would usually be set close to the NIR baseline. If a significant margin for intervention were to be included, it should be accompanied by a mechanism to ensure a tightening of monetary conditions when there is significant intervention. This could be achieved in different ways, for instance through a feedback rule from intervention to the official (SELIC) interest rate.
- Monetary policy conditionality will be geared more closely toward the government's inflation targeting objectives. This is expected to improve the effectiveness of monetary conditionality by monitoring parameters and variables that are relevant for the way in which monetary policy is conducted, and to be able to discuss the need for changes in monetary policies based on the behavior of these relevant parameters and variables.
- In this regard, the monetary program is envisaged to comprise both "forward-looking" and "backward-looking" elements. In particular, it is currently expected that the forthcoming review of the program will refer to a small set of indicators of future inflation, and will include some understandings on the monetary policy response to significant deviations of forecast inflation from its target path. The review would also continue to focus on the actual path of inflation, and on the monetary policy response to possible significant deviations of actual inflation from target inflation.

Summing Up by the Acting Chairman
Inflation Targeting—Implications for IMF Conditionality
Executive Board Meeting 00/1
January 5, 2000

Executive Directors noted that, in light of the growing consensus that price stability should be the primary objective of monetary policy, there had been increased use of formal inflation targeting as a framework for monetary policy, typically in the context of flexible exchange rate arrangements. While variously interpreted, inflation targeting generally implies that the monetary authorities' discretion is constrained by the announcement of an explicit inflation target, accompanied by a considerable degree of transparency regarding the link between current monetary policy actions and the pursuit of that inflation target.

Directors did not see any inherent obstacle to carrying out monetary policy on the basis of inflation targeting in the context of a Fund-supported program, and they saw the goals of the two as broadly complementary. Indeed, in the case of Brazil, the Fund had already approved a program with some modifications to traditional conditionality prompted by the authorities' inflation targeting regime.

Directors noted that successful inflation targeting required central bank independence and other supportive institutional features; the absence of fiscal dominance; a reasonably good understanding of the inflation process; and a considerable degree of exchange rate flexibility. Although the staff paper did not discuss how frequently these conditions are, in fact, likely to be met in emerging market economies, a number of Directors suggested that it would be essential to examine whether these conditions were in place in a given case before determining whether it would be appropriate to make use of the reviews-based approach to program monitoring discussed in the staff paper. Some Directors also suggested that, in those cases in which the institutional prerequisites for successful inflation targeting framework were not fully in place, consideration be given to setting structural benchmarks, including adoption of international standards on transparency and central bank independence, to strengthen the inflation targeting framework and facilitate subsequent use of the reviews-based approach. These actions would also serve to reinforce central bank credibility and convey a strong sense of national ownership.

Directors generally noted that inflation targeting could be accommodated within the traditional structure of conditionality, including a floor on net international reserves (NIR) and a ceiling on net domestic assets (NDA). While this structure of conditionality was designed primarily to safeguard the Fund's resources and to provide a check against excessively accommodative monetary policies that would jeopardize macroeconomic stability, they thought it could continue to serve these purposes under inflation targeting. A number of Directors, however, saw the possibility of inconsistencies between NDA ceilings and inflation targeting in some circumstances, and consequent confusion about a country's monetary policy priorities. It was generally acknowledged that this possibility warranted close attention and that the relationship between NDA ceilings and inflation targets—the

latter serving as the primary guide to monetary policy—would need to be made clear to the public.

At the same time, Directors noted that bringing conditionality more closely into line with the inflation targeting framework could help enhance the credibility of inflation targeting as well as the effectiveness of monetary policy. They saw such congruence as particularly desirable because of the increasing transparency of the Fund, together with the greater transparency of central bank decision making required by inflation targeting.

Directors discussed the reviews-based approach to monetary policy conditionality suggested by the staff. Under this approach, monetary policy would be subject to periodic reviews focusing on recent inflation outturns, together with indicators of the implications of monetary policy for future inflation. In this connection, Directors underscored the importance of broad ex ante agreement between the Fund and the authorities on timely monetary responses to possible deviations from the targeted inflation path. The reviews would be held quarterly, or even more frequently if needed, in conjunction with general program reviews or (where such reviews were not prescribed) as freestanding reviews. In cases where there were no issues of particular concern, completion of such reviews could be proposed on a lapse-of-time basis. At the same time, Directors emphasized that the main responsibility for day-to-day conduct of monetary policy should continue to reside with the authorities, and that the Fund should not seek to micro-manage the implementation of monetary policy.

Directors stressed the indispensable requirement of safeguarding the Fund's resources, regardless of the framework within which monetary policy was being conducted. They believed, therefore, that a floor on net international reserves would continue to be essential, under the reviews-based approach as well as under traditional conditionality. Directors agreed that, in any case in which it was considered necessary to set the NIR floor allowing a significant margin for unprogrammed intervention, some mechanism would be needed to limit sterilization; this mechanism could entail a reaction function of monetary policy to unprogrammed reserve losses, or simply the traditional ceiling on NDA—the specific mechanism would need to be worked out on a case-by-case basis.

Directors noted that, for an inflation targeting country, the reviews-based approach would have both advantages and disadvantages. Some Directors saw this approach as helping to reinforce the credibility of inflation targeting by supporting it within the framework of a Fund-supported program. It was also noted that, if money demand were unstable, the traditional approach could result in performance criteria being breached, even though monetary policy was fundamentally on track. In this light, these Directors saw the reviews-based approach as avoiding the possible stigma, program disruptions, and market confusion associated with breaches of performance criteria for which waivers were subsequently granted. The reviews-based approach would also provide greater flexibility to base the Fund's assessment of monetary policy on variables of greatest relevance to the individual country. But some Directors also noted that corresponding to this greater flexibility would be greater discretion for the Fund to determine whether monetary policies were appropriate, and thus to decide whether the country would be permitted to make a purchase. More generally,

Directors shared the staff's concern that the basis for the reviews-based approach should be sufficiently unambiguous to allow the Board to judge adherence to the intended conditionality and to enable program countries to be quite clear on their rights and obligations.

In light of these advantages and disadvantages, most Directors expressed their readiness to support the staff's proposal that the reviews-based approach be made an option for countries conducting monetary policy on the basis of inflation targeting. Directors noted that the choice of whether to use the reviews-based approach would need to take account of the country's economic circumstances. Some Directors observed, in particular, that a framework of monetary policy conditionality intended to help fine-tune a country's inflation performance would be less appropriate in countries where central bank credibility was less well-established or was under greater stress owing to turbulent economic conditions. In such cases, the conventional set of quantitative performance criteria would be more appropriate. In some cases, it might be appropriate to start off a program with such quantitative performance criteria and move gradually toward a reviews-based approach as market pressures abated and as the authorities gained experience under inflation targeting. Directors believed, therefore, that the appropriate form of monetary policy conditionality should be decided on a case-by-case basis in consultation with the authorities.

A few Directors suggested that consideration be given to amending the Articles of Agreement to include the pursuit of price stability as an explicit objective of Fund-supported programs. This is an issue that will require further reflection, and to which we could return in due course.

Directors recognized the practical challenges entailed both in the adoption of an inflation-targeting approach and in the implementation of the reviews-based approach to conditionality in this connection. They suggested, therefore, that the staff proceed cautiously, and advised that careful further consideration be given to the broad issues related to a reviews-based approach, including the role of current versus forward-looking indicators of policy, how to address likely data limitations, preparation of inflation forecasts, and similar issues. Directors agreed, however, that, in negotiating programs, the staff should be allowed to set monetary policy conditionality experimentally according to the reviews-based approach. This approach would be reviewed after sufficient experience had been gained, possibly after about a year.