# IMF Working Paper

# Current Issues in the Design and Conduct of Monetary Policy

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## Abstract

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Movements in global capital during the late 1990s and the greater emphasis on price stability led many countries to abandon fixed exchange rate regimes and to design institutions and monetary policies to achieve credibility in the goal of lowering inflation. Such recent developments have brought to the forefront the idea that freely mobile capital, independent monetary policy, and fixed exchange rates form an "impossible trinity." It is possible to have two of these policies, but not all three. Inflation-targeting regimes being adopted by many countries provide a way of resolving this dilemma.

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# I. INTRODUCTION

In the past decade, significant changes in the design and conduct of monetary policy have occurred around the world. Many developed countries and a growing number of developing countries have adopted inflation-targeting regimes, and 11 European countries formed the European Monetary Union in 1999. These events and the need for guidelines for appropriate institutional design have been a crucial impetus for the current interest in monetary policy issues in academic research, as well as in policymaking circles.

This paper is organized as follows. After discussing the general role of monetary policy, in particular its objectives, targets, and instruments, it will then address two particular issues—dynamic inconsistency and rules versus discretion—that are relevant because many countries have weak institutions and poor credibility of their monetary policy actions. After the breakdown of the Bretton Woods arrangement in the early 1970s, countries have operated under several types of monetary-exchange rate frameworks. Choosing a framework is by necessity country specific as it depends on the country's inflationary history, its degree of financial development, and its institutions and social conventions. The paper analyzes in some detail one particular monetary policy regime that has been adopted by several countries since the late 1990s, namely inflation targeting. The paper also touches on the country experiences so far with this regime and on the preconditions necessary for the success of inflation targeting, particularly in developing countries.

# II. MONETARY POLICY INSTRUMENTS, TARGETS, AND OBJECTIVES

Monetary policy *objectives* have traditionally included price stability, promoting growth, achieving full employment, smoothing the business cycle, preventing financial crises, and stabilizing long-term interest rates and the real exchange rate. Although some objectives are consistent with each other, others are not; for example, the objective of price stability often conflicts with the objectives of interest rate stability and high short-run employment. Countries may assign these objectives equal weights or, as many countries have done in recent years, place greater emphasis on the objective of low inflation. This recent shift has been triggered by strong empirical evidence that high inflation (and its associated high variability) distorts the decision making of private agents with regards to investment, savings, and production, and ultimately leads to slower economic growth.[2]

Monetary policy *targets*, as distinct from objectives, are proximate goals—goals that are not objectives in and of themselves but which, if attained, will work directly toward achieving the longer-term objectives of policy. Monetary policy targets are classified as either operating

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[2] See, for example, Fischer (1993) and more recently, Khan and Senhadji (2001).

targets or intermediate targets. *Intermediate targets* are variables that affect the ultimate objectives of monetary policy, but are not controlled directly by the central bank. They include various monetary aggregates and long-term interest rates. In contrast, *operating* targets are tactical goals that the central bank can influence better in the short run. Although central banks cannot use monetary policy instruments directly to affect intermediate targets, they can use them to affect operating targets, such as reserve money and short-term interest rates, which influence movements in intermediate variables. Monetary *instruments* that affect operating targets are generally classified as either direct or indirect. Direct instruments function according to regulations (granted to the central bank) that directly affect either interest rate or the volume of credit: for example, administratively set interest rate ceilings, individual bank credit ceilings, changes in reserve requirements, and directed lending. Direct instruments become increasingly ineffective as money and financial markets develop; besides, they create distortions, and promote financial disintermediation, fiscal dominance, and corruption. Indirect instruments are also termed "market-based instruments," since their use affects the market-determined price of bank reserves as the central bank engages in transactions with both financial and nonfinancial institutions. There are two main types of indirect instruments—open-market operations, and central bank lending policies—that are used to inject and absorb liquidity.

The monetary transmission process links monetary policy actions to the ultimate objectives of policy. The traditional textbook explanation concentrates on the demand for money, that is, the liability side of the financial system. However, since the late 1980s, researchers have been re-examining this transmission process from the asset side of banks' balance sheets, namely credit to the private sector. They have identified an additional channel of transmission for monetary policy, known as the "credit channel," with two implications that are of particular relevance for policymakers.

First, in many instances credit may serve as a superior intermediate variable for monetary policy, as well as a leading indicator for economic activity. Bernanke and Blinder (1988) show that if one considers the impact of monetary policy on the ability of the banking system to lend, credit succeeds as an intermediate variable where monetary aggregates fail, specifically, when demand for money is unstable, as is the case when a country is undergoing a process of financial development. Thus, in these circumstances policymakers may get a clearer picture of inflation or longer-term economic growth by observing credit rather than monetary aggregates. Second, identifying the credit channel of monetary transmission has permitted a greater understanding of the nature and characteristics of business cycles. As a series of studies following Bernanke, Gertler, and Gilchrist (1999) during the late 1990s shows, the impact of monetary policy and other shocks to the macroeconomy tends to be stronger and more persistent than traditional models would predict, and the credit channel helps to explain this discrepancy. The credit channel contains an amplifying mechanism whereby difficulties in the real sector lead to tightness in credit markets, thus shrinking the credit available for investment, which in turn exacerbates the real sector's downturn. Furthermore, it is now apparent that shocks to bank credit itself may have a considerable impact on economic activity. Indeed, studies of recent slowdowns in bank credit in different regions of the world show that regulatory changes as well as past financial distress may lead banks to adopt a more cautious approach to lending, with a visible impact on economic activity.

## III. DYNAMIC INCONSISTENCY AND INFLATIONARY BIAS

While both theoretical and empirical studies have demonstrated the fallacy of a long-run relationship between wage inflation and unemployment, under certain circumstances a short-run trade-off between these variables may be found. The existence of this short-run Phillips curve is widely believed to be associated with the presence of sticky wages and prices. The possibility that an expansionary monetary policy may increase output and employment in the short run leads to one aspect of what has been termed the "problem of dynamic inconsistency," developed principally by Kydland and Prescott (1977) and Calvo (1978).

Dynamic inconsistency refers to the difference between the optimal policies that a central bank would announce it would carry out, and the policies that the central bank would carry out after the public had made decisions on the basis of its expectations. If the central bank announces that it will target a particular rate of inflation, and the public engages in contracts based on that announcement, the central bank will have an incentive to renege on its promise, by exploiting the possibility of achieving higher output by producing surprise inflation. But the public will then know this, and will adjust its inflationary expectations upward, thereby limiting the desired output gain. In fact, output may not rise at all, depending on whether underlying wage and price rigidities prevent complete wage and price adjustments. Another way of putting this idea is to say that policymakers unconstrained by rules have an incentive to "cheat" the private sector in order to spur an output gain. However, since rational agents account for the incentive of policymakers to produce surprise inflation, they will adjust their behavior accordingly, creating an economy with an inflationary bias.

The government's incentive to inflate might result from other considerations than unemployment. For instance, it might result from budgetary considerations. If the government finances part of its expenditures with revenues from money creation or a reduction in the real value of its liabilities, it has an incentive to announce a low rate inflation, inducing high demand for real balances, and then to choose a higher rate of inflation later on. Knowing the government's incentive to inflate, the public and investors distrust the government, minimize their cash balances, and purchase only indexed debt.

Dynamic inconsistency can also imply difficulties in bringing down inflation in disinflation plans. After the private sector sets nominal contracts, the government tries to disinflate less than promised to obtain some output growth. The government announces a low inflation rate and expects the public to believe it. However, the announcement of low inflation by the government is not credible. The public knows that the government has an incentive to renege its promises after the public sets its expectations, and therefore does not believe in the disinflation announcement.

A number of countries have successfully resorted to pegging the exchange rate in order to overcome the dynamic inconsistency problem, but it must be emphasized that this mechanism is also not exempted completely from a similar dynamic inconsistency problem. By pegging the exchange rate, the government wants to reduce inflation by importing credibility from abroad,

i. e., from a lower inflation country. However, the public knows that the government has an incentive to renege its promises and devalue the currency to depreciate the real exchange rate and stimulate exports and the domestic output. The public will therefore not believe in the disinflation plan and inflation will not decrease as much as the government would like after the introduction of the pegged exchange rate system.

One could therefore ask the following question: Are countries condemned to an equilibrium with high inflation rates, where the public distrust the government because of its incentive to renege? Of course, there are institutional reforms that countries can adopt to lower inflationary expectations and still keep some flexibility to counteract shocks in the economy. The paper will outline the debate on rules versus discretion in the next section and the current discussions on inflation targeting in the following sections as a mechanism device to overcome the inflationary bias in monetary policy.

## IV. RULES VERSUS DISCRETION

Many now agree that central banks cannot act in a completely discretionary manner. Some kind of guideline or "rule" is essential for good policy, and acting without a rule may have adverse consequences. This consensus emerges from a long debate amongst economists regarding the relative merits of rules versus discretion in the conduct of monetary policy.

However, there is still disagreement on whether rules and discretion are mutually exclusive. At a narrow extreme, a rule may be thought of as a pre-set policy, independent of contemporaneous circumstances, neither permitting nor requiring judgment or discretion over time. An example of such a policy might be Milton Friedman's (1960) proposal for constant money growth. Any deviation from a rule like this is, by definition, discretionary policy. At the other extreme, some like Ralph Bryant and others (1993) provide perhaps the broadest interpretation of a rule: they suggest that *all* monetary regimes can be described as a system of rules—even ones with discretionary elements.

However, the distinction between rules and discretion that most use probably lies between these two extremes. Under the narrowest example, such as Friedman's, there is no human intervention. This is highly implausible and rarely seen. Bennett McCallum, an advocate of rules-based monetary policy notes that "...even the most enthusiastic promoters of rules-based policymaking do not contemplate that central banks would turn the selection of instruments over to a clerk/calculator."[3]

Instead, authors like McCallum (2000) and John Taylor (1993), have suggested that, to be rules-based, a monetary regime must satisfy certain minimum criteria. It is not sufficient for policy to

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[3] McCallum (2000), p. 275.

be nonrandom. Even under a discretionary regime, the central bank has policy goals and does not conduct policy randomly. However, under a discretionary regime, while policymakers may have an objective function, they nonetheless operate on a period-by-period basis. Decisions are based on current conditions while past experiences are treated as irrelevant bygones. By contrast, for a regime to consist of rules that reduce inflationary bias, policymakers must have a longer-run vision. McCallum calls this a "timeless perspective" under which monetary policy is conducted "as if current macroeconomic conditions were not known . . . as if the optimization had been made in the distant past (as far as the state of the economy was concerned)."[4]

According to the proponents of rules, the main advantage of such a "timeless perspective" would be to prevent policymakers from deviating from a social optimum—needlessly increasing inflation monetary volatility—in order to pursue a short-term goal.

However, even with a nonrandom objective function and a long-term rule, there is no guarantee that the authority will pursue a socially optimal policy. Instead, as Barro and Gordon (1983) point out, whether or not the authority pursues socially optimal policy depends on both the precise nature of the objective function and certain assumptions regarding market participants. In the Barro-Gordon framework, the authorities explicitly aim to reduce unemployment below its natural rate. Rationally, market participants incorporate such behavior into their expectations. Accordingly, inflation will exceed the socially optimal rate. This is simply a restatement of the principle of dynamic inconsistency.

Traditionally, economists have focused on two main kinds of instrument rules:

- Money growth rules (advocated by McCallum (2000)) are extensions of Friedman's proposal but have been extended to include feedback elements as a way to correct past mistakes or to gradually adjust to permanent shifts in velocity.

- Interest rate rules (advocated by Taylor (1993)) also include feedback elements: the central bank raises interest rates when expected inflation rises but also reduces interest rates when unemployment rises above an undesirable level.

Which of these target rules should be more successful in restraining inflation, preventing unnecessary business cycle fluctuations, or encouraging growth over the long term remains an unsettled question. More recently, economists have come to agree that rules may apply to targets as well as instruments. Examples of target rules include both exchange rate management regimes and especially the inflation targeting regimes that will be discussed later.

Finally, most now agree that any rules-based regimes still permit a margin for discretion. Some, like Ben Bernanke, now at the Federal Reserve Board of Governors, have come to reject the idea that rules and discretion are diametrically opposed. Instead, "rules" and "discretion" may

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[4] McCallum (2000), p. 277.

be complements. The more well-defined the rule, the more effectively and more judiciously can discretionary policy be applied when needed.

## V. THE NEED FOR A NOMINAL ANCHOR: EVOLUTION OF MONETARY FRAMEWORKS

As policymakers in many countries throughout the world have gravitated toward an approach based more on rules than on full discretion, the issue of choosing an appropriate target for policy has become key. In a rules-based policy, the target serves as a communication tool with the public, as it reveals policymakers' intentions and priorities, and indicates whether a policy action—for example, a change in the short-term interest rate, or an intervention in the foreign exchange market—will be required. In turn, to the extent that the public observes and understands this target, it establishes a "nominal anchor" for agents' expectations, thus helping to achieve and maintain price stabilization.

Nominal anchors can either be price- or quantity-based. The list of possible price anchors is relatively extensive, encompassing the exchange rate, the price of gold, the composite price of a basket of relevant commodities for a country, and, finally, the inflation rate. On the other hand, discussion of quantity anchors tends to focus on two major candidates: monetary aggregates and to a lesser extent, nominal income. Effectiveness of the anchor chosen will rely, among other things, on renouncing all other anchors. For example, policymakers cannot credibly adopt one price anchor, such as the exchange rate, and commit to maintaining another price or quantity anchor.

In practice, countries adopting rules-based frameworks in recent years have chosen either monetary or exchange rate targets as their nominal anchors. Although it is possible to operate within a relatively wide range of intermediate arrangements, it is apparent that greater reliance on explicit monetary or inflation targets requires allowing a greater degree of flexibility in the exchange rate and, likewise, greater adherence to an exchange rate target or peg leads to greater volatility in monetary aggregates and, perhaps, inflation.

When one observes which exchange rate arrangements have been chosen by countries in recent years, it seems to be the case that intermediate regimes are losing ground to the extremes, those arrangements possessing either greater fixity or greater flexibility of the exchange rate. Fischer (2001) analyzed the official or "de jure" classifications of the exchange rate arrangements of IMF member countries, and reported that the portion following intermediate regimes fell from 62 to 34 percent between 1991 and 1999, while that of hard pegs grew from 16 to 24 percent and that of floating regimes grew from 23 to 42 percent. Observations such as this have led many economists to conclude that there has been a "hollowing of the middle," or a disappearance of intermediate regimes throughout the world.

However, further analysis reveals that intermediate regimes, or the gray area lying between the extremes, have not been abandoned entirely by most countries. When one departs from an examination of de jure classifications and instead focuses one's attention on the actual behavior

of policy, markedly different conclusions arise. For instance, recent studies by Levy-Yeyati and Sturzenegger (2000, 2001) have aimed to construct "de facto" classifications of countries by their degree of intervention in exchange markets, essentially by measuring the volatility of international reserves relative to that of the exchange rate. Using this type of measure, they find that although regimes officially classified as intermediate clearly lost ground between the mid-1970s and the end of the 1990s, the same could not be said of actual behavior, as the percentage of de facto intermediate regimes during this period remained essentially unchanged. Similarly, Hernández and Montiel (2001) contrast de facto and de jure measures to analyze post-crisis exchange rate policies in several Asian countries. They find that, although greater flexibility in the exchange rate was often introduced and announced, intervention was not abandoned altogether and a considerable amount of exchange rate smoothing took place. This type of behavior, when policymakers announce a move to greater exchange flexibility yet continue to intervene actively in the foreign exchange market, appears to be a common feature in many developing countries. Calvo and Reinhart (2000, 2002) have examined this phenomenon closely, labeling it "fear of floating," and have argued that it is a natural response to the unique conditions facing emerging economies today. They show that a typical developing country with a floating exchange rate tends to intervene far more aggressively than industrial countries, allowing less variability in the exchange rate and much greater variability in interest rates. There is good reason for this, they argue, as the developing country is justifiably wary of the costly effects of large depreciations—loss of access to international capital markets, a high pass-through from exchange rates to inflation, detrimental impact on trade, and loss of policy credibility—and equally concerned with the Dutch disease-type consequences of real appreciations.

Thus, developing countries recently have either opted for hard pegs—for example, currency boards or outright adoption of another country's currency—or for more flexible regimes, albeit with a significant degree of intervention and smoothing of exchange rate fluctuations. Choosing a hard peg, or an exchange rate anchor, may have certain advantages: it is relatively easy to implement, provides a readily understood and transparent target for policymakers, and, by leading to greater exchange rate stability, may encourage trade and foreign investment. Furthermore, in contrast to intermediate regimes, it has been shown in a recent study by Frankel, Schmukler, and Servén (2000) that, because of its simplicity, a hard peg is more *verifiable* by market participants, that is, it is easier for agents to assess whether the target is being achieved ex post. In this manner, a hard peg may permit a more rapid convergence of agents' expectations to the desired long-run level targeted by policymakers. For these reasons, experience has shown that adoption of hard pegs has in many instances been successful in stabilizing inflation from historically high levels.

However, other factors weigh in favor of adopting monetary over exchange rate targets. Freeing up the exchange rate allows a country the option of pursuing an independent monetary policy, which may then be used countercyclically to minimize fluctuations in real activity. By retaining monetary independence, a country also retains seigniorage revenue as well as a lender-of-last-resort function by which the central bank may be able to provide emergency support to solvent but illiquid banks. A more flexible exchange rate could act as an automatic stabilizer in the event of adverse trade shocks, for example by providing stimulus to demand for nontradables

when the market for a country's exports has been hit with a negative shock. Finally, the experience in recent years has shown that fixed exchange rates tend to be particularly vulnerable to speculative attacks, and thus currency crises are more likely when a government commits to a pre-announced level for the exchange rate.

For those countries that opt for greater exchange rate flexibility, the choice then shifts to what monetary target is more appropriate: monetary aggregates or the inflation rate itself. Targeting monetary aggregates has one appealing advantage: although lowering and then stabilizing inflation is the ultimate objective, policymakers exert much greater control over monetary aggregates such as base money or M1 than they obviously do over the inflation rate. Thus, particularly in the early stages of a targeting regime, it will be much easier for monetary targets to be reached, and credibility will be acquired more rapidly. However, there are two major drawbacks to targeting monetary aggregates. First, monetary aggregates are less easily understood by the public, and thus their informational content is considerably lower than that of the inflation rate. Second, in order to be effective, monetary targets require that a stable, or at least predictable, relationship exist between the aggregate and the rate of inflation or, equivalently, that a stable demand for this monetary aggregate can be found. If this is not the case, then policymakers run the risk of consistently meeting the target for monetary aggregates yet missing the (implicit) inflation target. Thus, although credibility is gained, policymakers will ultimately fail in their goal of lowering and stabilizing the inflation rate. Numerous studies have shown that instability of money demand is particularly common to developing countries undergoing processes of financial liberalization, yet even industrialized countries are not immune. In fact, as Mishkin and Savastano (2000) note, this type of problem led the German Bundesbank, arguably one of the most successful targeters of monetary aggregates, to miss its monetary targets about half of the time in order to ensure that the (more important) inflation objective was met. Thus, most countries choosing monetary over exchange rate targets in recent years have favored an inflation targeting framework over one that targets a monetary aggregate.

## VI. IMPLEMENTING INFLATION TARGETING

### A. Preconditions Issues

The successful implementation of an inflation targeting regime requires the presence of certain macroeconomic, institutional and operational conditions.[5] First, the authorities should be fully committed to price stability as the primary goal of monetary policy. This rules out the possibility of targeting at the same time any other variable, including nominal exchange rate or unemployment (output). In this context, exchange rate arrangements with limited flexibility— crawling pegs or target zones—could coexist with inflation targeting as long as the latter has priority. Also, in a flexible exchange rate regime, central bank intervention in support of the

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[5] A detailed exposition of inflation targeting pre-conditions can be found in Carare, Schaechter, Stone, and Zelmer (2002).

exchange rate should be limited to smooth the effects of temporary shocks on inflation. This is particularly important in the case of small open economies in which the pass-through from exchange rate to inflation might be high and with short lags, and the central bank is trying to gain credibility.

On the same line of thought, unemployment (real output) stabilization may be given some consideration within an inflation targeting regime, but only as a secondary goal of monetary policy. In a "strict inflation targeting" regime the monetary policy instrument may respond to the output gap, but only to the extent that it affects the inflation forecast, and not because it enters in the central bank's loss function. The authorities should be aware that the larger the weight given to unemployment stabilization, the longer it will take to achieve the inflation target, following a supply shock.

A second major condition for an inflation targeting regime is central bank independence in the conduct of monetary policy, what is known as instrument independence, as opposed to goal independence. Once the goal of monetary policy is established either by the central bank, the government, or jointly, the central bank has to be able to choose and manage its instruments to achieve that goal. Instrument independence requires the absence of fiscal dominance and financial sector soundness. Fiscal dominance, a situation in which monetary policy is governed by the financial needs of the government, undermines the ability of the central bank to achieve the inflation target. This is particularly the case in which the public sector relies systematically and significantly on revenues from money creation, or on continuous placements of government bonds in thin domestic financial markets. Under these conditions, the central bank may resist an increase in market interest rates to correct deviations of the forecasted inflation from the target because of the potential impact on the fiscal position. Similarly, a weak financial system may prevent the central bank from raising interest rates; it also may seriously affect credibility of the central bank if the public perceives that sooner or later large financial support will be required to prevent a financial crisis. Once the crisis emerges, this financial support imposes an additional burden on monetary policy.

A third major condition for the implementation of the inflation targeting is public accountability of the central bank for achieving the goal, and a sufficient degree of transparency in communicating to the public the main aspects of policy design and implementation. This is essential to increase discipline and to enhance credibility in a framework in which monitoring performance against targets is difficult because of considerable lags in the transmission of policy actions. It also contributes to reducing political pressures to deviate from the announced policy. Transparency implies the following: first, the explicit announcement of inflation targets; second, availability of clear and sufficient information to the public to assess the stance of monetary policy; third, the announcement of any changes in monetary policy, a clear explanation of the reasons behind the changes, and the expected impact on the inflation outlook; fourth, an ex-ante indication of a possible target breach, its causes, and the policy actions that will be taken to bring inflation back on track; and, finally, ex-post comprehensive analysis of the performance of monetary policy. The central bank may use different mechanisms to communicate these issues to the public, including through the periodic release of Inflation Reports, regular press releases and press conferences, and special central bank publications

explaining the features of the inflation targeting framework. Accountability may also be enhanced by establishing explicit actions against the monetary authorities in response to a breach in the targets.

Inflation targeting requires an operational framework to guide the authorities in conducting monetary policy. This framework relies on: first, reasonably well-understood channels between policy instruments and inflation, the relative effectiveness of different monetary instruments, and the lags involved; second, a methodology to produce inflation forecasts using different approaches and considering all information available; and third, a forward-looking operating procedure that derives an optimal policy rule—the central bank's reaction function—by which changes in the instrument depend on deviations of the inflation forecast (the intermediate target) from the inflation target.

Two issues present in several emerging market economies tend to complicate the task of the central bank in monetary management. Large capital movements may require some degree of central bank intervention in the foreign exchange market, particularly in the case of temporary shocks. The key issue here is for the central bank to be able to assess the true nature of the shocks, and determine if there is clear case for exchange rate appreciation or depreciation, a task that may not be easy to carry out. The effectiveness of monetary policy is also compromised in highly dollarized economies because of the limited impact of monetary policy actions on the inflation target.

## B. Country Experiences

Although there is some disagreement on the criteria used to classify a country as a full- fledged inflation targeter, it is clear that there is an increasing trend in targeting inflation as the main goal of monetary policy. Even some emerging market economies that do not have in place all requirements for the adoption of a full-fledged inflation targeting framework have initiated a transition process leading toward a future implementation of this framework.

The increasing trend in the adoption of full-fledged inflation targeting might be explained by its relative success in reducing inflation and private sector expectations, and contributing to maintain price stability, even in the presence of some international disturbances, and without a significant increase in unemployment or output loss. However, some say that in general inflation targeting has benefited from a benign international economic environment and the true test would come after the completion of a full business cycle. More empirical research is still needed for a comprehensive assessment of the economic impact of inflation targeting, particularly in the case of emerging market economies.

According to surveys of country experiences with inflation targeting presented by several authors, some common features can be observed in advanced economies and in emerging

market economies.[6] First, most emerging market countries have experienced a transition period prior to adopting a full-fledged inflation targeting regime. The transition started when the authorities announced their intention to adopt the inflation targeting framework or to pursue an inflation target within an exchange rate band. For most emerging market countries, the fiscal position strengthened ahead of the transition to inflation targeting.

The transition period has ranged from slow (Chile and Israel) to fast (Brazil, Czech Republic, Poland, and South Africa). The length of the transition period has been determined by the degree of indexation of the economy, the risks of causing turbulence in the foreign exchange market, and the attainment of credibility. In some cases, inflation was at double digit levels at the beginning of the transition period (Chile and Israel); however, at the time of adoption of the inflation targeting, most of the countries had reached a single digit inflation rate. So far inflation targeting has not been used as a mechanism to bring down high inflation rates.

Second, in relation to the institutional issues, the legal framework deserves greater attention in emerging markets prior to the adoption of a full-fledged inflation targeting, perhaps motivated by a pressing need to enhance credibility from the beginning. In this context, several emerging market countries have revised the central bank charter, to allow for more institutional independence, including through prohibiting central bank financing to the government. On a related aspect, only for a few countries is there a clear and unique mandate to the central bank for achieving price stability. In most emerging market countries, monetary policy objectives aim at achieving both internal and external currency stability. Finally, in most full-fledged inflation targeting countries, the government is involved in the setting of the inflation targets. This provides an additional support in those cases in which price stability is not a clear mandate of the central bank.

There are some common features and several differences in operational issues between advanced countries and emerging markets. First, all inflation targeting countries employ market-based instruments of monetary policy to achieve the desired level of the operating target— usually, the short run interest rate. In addition, the successful implementation of preemptive measures and transparency in communicating with the public may explain why none of the observed breaches of the inflation targets significantly undermined credibility of the inflation targeting framework. With regard to differences, emerging market economies tend to rely less on econometric models in the conduct of monetary policy, and more on the use of judgment, in lieu of the higher degree of uncertainty with respect to transmission channels and the effectiveness of monetary policy instruments because of ongoing structural changes. This also explains shorter horizons as well as bands instead of point targets for inflation targets. Also, there are more frequent interventions of the central bank in the foreign exchange market, partly explained by the existence of a higher pass-through from exchange rate to inflation, and its role in forming inflationary expectations, particularly at the initial stages.

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[6] Agénor (2002); Carare, Schaechter, Stone, and Zelmer (2002); Masson, Savastano, and Sharma (1997); and Schaechter, Stone, and Zelmer (2000).

A comparison of macroeconomic indicators for emerging market countries that target inflation with those for other emerging market countries reveals that inflation targeters are larger and more developed than the rest, have better developed domestic financial systems (measured by standard indicators of financial system development), and have higher sovereign credit ratings. No significant differences have been detected on indicators to assess the external position.

On balance, the inflation targeting approach appears to be very promising for developing countries. It offers a number of operational advantages, and it compels policymakers to deepen reforms, enhance transparency, improve the fiscal stance, and eventually converge to the international level of inflation. As the experience of inflation targeting in industrialized countries indicates, to attain these objectives, central banks must keep the public informed about their policies and performance. This helps clarify the responsibilities of the central bank and of other executive branches of the government.

It is important to keep in mind that the inflation-targeting strategy is not a panacea. It is a useful framework for conducting monetary policy because of the transparency it provides on the link between monetary policy actions and the pursuit of the inflation target. In addition, it provides a framework for conducting monetary policy under constrained discretion. It relies on rules, as the adoption of explicit targets requires commitment by the central bank toward policy consistency. At the same time, it leaves at the central bank's discretion the decision on how to deploy its instruments, which allows for some flexibility in responding to unforeseen domestic and external shocks. But maintaining sound macroeconomic fundamentals remains the necessary condition for preserving price stability under any monetary framework.

## VII. CONCLUSION

In developing countries, monetary policy has become increasingly important in recent years, even though capital accounts have been progressively liberalized. The reason is that the large movements in global capital during the late 1990s forced many of these countries to abandon fixed or closely managed exchange rate regimes. Such recent developments have put a new face on an older, deeper lesson: namely that freely mobile capital, independent monetary policy, and fixed exchange rates form an "impossible trinity." It is possible to have any two of these policies, but not all three.

In a globalized capital markets environment, there is less room for divergence of views among market participants about the appropriate stance of exchange rate and monetary policy, less time to adjust to shocks, and greater pressure to achieve closer convergence of economic performance among trading partners. As a result, a number of developing countries have adopted or are seriously considering adoption of regimes with more exchange rate flexibility—and greater scope for monetary policy.

Traditionally, monetary rules have been based on the behavior of monetary instruments. However, in an environment of large international capital flows with unceasing financial innovation and ever more sophisticated asset markets, instrument-based rules—in particular, those based on monetary aggregates—have become more difficult to implement. Accordingly, central banks have increasingly embraced the inflation-targeting approach. In some cases, the approach has helped monetary policy become more coherent, transparent, and credible. And, if supported by proper fiscal measures, the inflation-targeting approach has helped policymakers smoothly guide inflation rates ever lower, while permitting them some discretion to stabilize output. This regime has become increasingly popular and so far the results have been promising.

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