**Monetary and Fiscal Policies
in Emerging Markets**
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Abstract

This paper surveys possible monetary policy options for emerging market countries. As the paper does not seek to enter into the fix versus flex debate, it only considers monetary policy options for countries with a flexible exchange rate. After making the point that the conduct of monetary policy requires a nominal anchor and surveying different types of nominal anchors, the paper suggests that most academics and policymakers agree on the fact that inflation targeting should be the nominal anchor of choice. Hence, the paper describes the main characteristics of an inflation targeting regime and discusses its applicability to emerging market countries. Next, the paper recognizes the necessity of coordination between fiscal and monetary policy and points out that, in order to conduct countercyclical fiscal policies, emerging market countries need to build fiscal institutions that allow accumulating surpluses during periods of economic expansion. The paper concludes by studying the applicability of inflation targeting to Egypt and finds mixed support for this option.

ملخص

تستعرض هذه الورقة بدائل السياسات النقدية المتاحة أمام الدول ذات الأسواق الناشئة. ونظراً لأن الورقة لاتستهدف المفاضلة بين نظام سعر الصرف الثابت والمرن، فهى تناقش البدائل المتاحة للسياسة النقدية أمام الدولة التى تتبنى نظام سعر صرف مرن. فبعد إيضاح أن تنفيذ السياسة النقدية يتطلب تحديد سعر صرف إسمى إرتكازى، وبعد إستعراض الأنواع المختلفة منه، تشير الورقة إلى إتفاق معظم الأكاديميين وصانعى القرار على ان إستخدام التضخم كهدف يجب أن يكون الخيار فيما يتعلق بالمرتكز الأسمى. ومن ثم فقد وصفت الورقة أهم معالم نظام التضخم كهدف ومرتكز إسمى، كما ناقشت تطبيقاته على الأسواق الناشئة. كما أوضحت الورقة أهمية التنسيق بين السياستين المالية والنقدية. فضلاً عن هذا، فقد أكدت الورقة على ضرورة قيام الأسواق الناشئة بتوفير نظم مالية عامة تسمح بتراكم الفوائض خلال أوقات الإزدهار الاقتصادى حتى يمكنها تطبيق سياسات مواجهة الدورات. وتنتهى الورقة بدراسة مدى إمكانية تطبيق هدف التضخم فى مصر والمبررات المختلفة لهذا الرأى.

I. Introduction

"The IMF is in the business of managing crises. Well, in the last few years we managed to have quite a few crises" (M. Mussa, Economic Counselor and Director of the Research Department of the IMF). The words of Michael Mussa describe well the 1990s, a decade characterized by several currency and financial crises. Everything started with the crisis of the European Monetary System in 1992, then the 1994-1995 "tequila" crisis that shattered Latin America, and finally the East Asian, Russian, and Brazilian episodes of the 1997-1999 period. These events gave new strength to the debate on monetary policy and exchange rate options for small open economies and for emerging market countries in particular. On the one hand, some economists highlight the risks of floating and non-credible fixed exchange rate regimes and point out that, as emerging markets have a very limited ability to conduct an independent monetary policy, they should move to super-fixed exchange rate systems like a currency board or dollarization (Calvo, 2000a, Dornbusch, 2000, and Hausmann, 1999). On the other hand, some economists point out that dollarization and currency boards cannot solve the fundamental problems of emerging markets and may end up being more of "a straightjacket than an anchor of salvation" (Chang and Velasco, 2000, Mishkin, 1998, and Sachs and Larraine, 1999). Yet, other economists suggest that there are no one-size-fits-all monetary policy regimes and that "no single exchange rate regime is right for all countries or at all times" (Frankel, 1999, Mussa et al., 2000).

The purpose of this paper is to survey the literature on monetary and fiscal policy options for emerging market countries. However, the paper does not seek to enter the debate on whether an emerging market country should adopt a super-fixed or flexible exchange rate. Therefore, the paper will merely assume that a given country has decided to adopt a flexible exchange rate regime and then survey its possible policy options. The paper is organized as follows. Section 2 discusses the concept of the nominal anchor and illustrates why countries need a nominal anchor. Section 3 concentrates on inflation targeting (IT), the nominal anchor that is *en vogue* among countries that opted for a flexible exchange rate. This section will also introduce the concept of the Taylor Rule and discuss the similarities between IT and Taylor Rule. Next, the section will move on to discuss the main implementation issues and the necessary conditions for the adoption of an IT framework. Section 4 discusses the main links between monetary and fiscal policies in an IT environment. In particular, it explores the alternative roles of fiscal policy rules (automatic stabilizers) versus

discretionary fiscal policy and emphasizes how discretionary fiscal policy may affect the conduct of monetary policy. Section 5 explores the possibility of applying an IT framework to Egypt. Section 6 concludes.

II. Why Do Countries Need a Nominal Anchor?

A nominal anchor is an intermediate monetary policy target that helps the public to form expectations on the future path of inflation. While there is now widespread agreement on the fact that the primary goal of monetary policy should be a low and stable rate of inflation, and that there is no long-run trade-off between inflation and unemployment, politicians and politically motivated central bankers may still be tempted to use monetary policy to exploit the short-run trade-off between inflation and unemployment. Therefore, the presence of a constraint on the ability of issuing money (i.e., a nominal anchor) can help in limiting short-run monetary policy actions that are inconsistent with the long-run objective of low and stable inflation. Besides limiting the possibility of inflationary discretionary policies and reducing the time-inconsistency problem, the presence of a nominal anchor helps to determine inflation expectations and assure that the price level is uniquely determined. Bernanke et al. (1999) provide an illuminating example of the risks of conducting monetary policy without a nominal anchor. Suppose that for some unknown reason there is an "inflation scare" (i.e., a sudden increase in expected inflation), then the central bank has two options: the first option is to keep a tight monetary policy and prevent inflation from increasing; the second option is to adopt an accommodating monetary policy and allow inflation to reach the expected level. Both policies have costs. While the first policy —through its effect on the real interest rate and real wages— could cause a recession, the second policy, besides generating an increase in inflation, could feed into inflation expectations by signaling to the public that there is nothing to prevent an additional jump of inflation.

Nominal anchors can be classified into three basic monetary policy regimes: (i) exchange rate targeting; (ii) monetary targeting; and (iii) inflation targeting. Pegging the exchange rate or tightly managing its variability is a rather simple and often used method to provide a nominal anchor. However, while this policy regime could be the only viable alternative for small developing countries without a sophisticated financial system and limited capital mobility (after all, until the 1970s, the value of most monies was linked to the value of either gold or the US dollar), fixed exchange rates have been considered as one of the main causes of the recent currency and financial crises. On the

basis of this observation, many economists have suggested that emerging market countries should move to either a strong fix (Calvo, 2000a and Hausmann, 1999) or to a more flexible exchange rate (Mishkin, 2000, Sachs and Larraine, 1999, and Velasco, 2000). As this paper concentrates on monetary policy options for countries that have opted for a flexible exchange rate, it will not explicitly consider the pros and cons of dollarization and currency boards, but rather move on to the discussion of monetary targeting and inflation targeting.

Countries that do not use the exchange rate as a nominal anchor need to establish an alternative credible anchor. In fact, a successful implementation of a floating exchange rate regime needs a clear description of the objectives of monetary policy and an institutional design that grants the central bank the independence necessary to pursue these objectives. While an independent central bank does not need to have *goal independence* (i.e., the ability to set its own nominal target), it does need to have *instrument independence*. Under instrument (or operational) independence, the government sets the nominal target but the central bank is free to decide how to adjust its policy instruments (for instance, the short term interest rate) to reach the nominal target. Instrument independence guarantees that the central bank will act towards the achievement of the nominal target and limits the possibility of a political cycle in the conduct of monetary policy. Instrument independence also limits the possibility that monetary policy actions will be dictated by the financing needs of the public sector (i.e., monetization of the deficit).

The first possible monetary policy option for a country with a flexible exchange rate regime is monetary targeting. Monetary targeting consists of targeting the growth rate of a given monetary aggregate (or a group of monetary aggregates). An extreme case of monetary targeting is the k percent rule proposed by Milton Friedman (1959). According to this rule, the central bank should be required to maintain a constant growth rate of the money supply. One advantage of monetary targeting is that information on whether the central bank is reaching its target is almost immediate (although, not as immediate as in the case of exchange rate targeting). Furthermore, in countries that do not adopt a strict Friedman's k percent rule, monetary targeting allows some flexibility in the conduct of monetary policy and opens the possibility of conducting a counter cyclical monetary policy.

While monetary targeting can be helpful to fix inflationary expectations, this monetary framework is well understood only by a small group of central bank watchers

and not by the general public. Therefore, the lack of a large audience that monitors the behavior of the central bank and that can punish the central bank for not reaching its target (or punish the elected politicians for interfering with the conduct of monetary policy and therefore preventing the central bank from reaching its target) could undermine the credibility of such a target or the independence of the central bank (Lohmann, 2000). Furthermore, the rationale for monetary targeting is the assumption of a stable relationship between money supply and inflation. This can be easily seen by observing that the monetarist equation $M = \frac{1}{V}PY$ states that, for any given level of income, the price level is completely determined by the quantity of money only if the velocity is constant. However, the experience of the United States during the 1979-1981 period clearly suggests that there may be large shifts in velocity. For this reason, successful monetary targeting countries like Switzerland and Germany allow their monetary policy to undershoot or overshoot the pre-announced monetary targets. This has led some observers to conclude that, under the rhetoric of monetary targeting, Switzerland and Germany are actually conducting an inflation targeting policy (Bernanke et al., 1999).[1] Whatever their real target may be, while the Bundesbank and the Central Bank of Switzerland have been able to constantly miss their monetary targets without generating inflationary expectations, this is not likely to be the case for emerging market countries. In emerging market countries, a repeated over-shooting of a pre-announced monetary target is likely to be interpreted as a sign that the central bank is adopting a lax monetary policy and would, therefore, generate inflationary expectations. Furthermore, compared to more advanced economies, emerging market countries are more likely to have an unstable relationship between inflation and monetary aggregates and are less likely to have complete control over their monetary aggregates. Therefore, monetary targeting seems to be a risky strategy for emerging market countries (Mussa et al., 2000).

An alternative nominal anchor for countries with a flexible exchange rate is inflation targeting (IT). Inflation targeting consists of announcing a target for inflation and using monetary policy instruments to reach this target. In spite of its conceptual simplicity, it is rather complex to implement and is a relatively new monetary policy framework. The first country to formally adopt IT was New Zealand in 1990. Nowadays, 13 other

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[1] Lohmann (2000) uses audience-cost theory to provide an explanation of the multiple targets pursued by the Bundesbank.

countries have made (or are in the process of making) IT their official monetary policy framework (9 of them are emerging market countries): Australia, Brazil, Canada, Chile, Colombia, Czech Republic, Israel, Mexico, Poland, South Africa, Sweden, Thailand, and United Kingdom (Croce and Khan, 2000).[2]

As inflation targeting seems to be the only available nominal anchor and, therefore, the "regime of choice" (S. Fischer, 2000) for emerging market countries that want to maintain a flexible exchange regime, the next section will discuss in greater detail IT and its applicability to emerging market countries.

Before concluding this section, however, it is worth mentioning two other possible monetary policy frameworks. The first is nominal income targeting (Taylor, 1985, and Hall and Mankiw, 1994) and the second is what Mishkin (1999) calls the "just do it" approach to monetary policy. The first approach consists of targeting the growth rate of nominal GDP. While this approach has the advantage of putting equal weight on inflation and real income stabilization, it has serious drawbacks (the most important being that nominal income targeting requires explicit forecasts of real GDP growth) and so far has not been used by any country.[3] Contrary to nominal income targeting, the "just do it" approach (i.e., conducting monetary policy without any explicit target or anchor) has no theoretical backing, but it has proven to be enormously successful in at least one country: the US. This approach has no explicit nominal anchor and is mainly based on the reputation of an institution (the FED) and a central banker (Alan Greenspan). Therefore, it is not easily applicable to emerging market countries that do not enjoy this kind of reputation. In particular, Goodfriend (1993) shows that "inflation scares" were not uncommon in post-war U.S and one can easily imagine that episodes of this kind are even more likely to happen in the presence of the unstable political situation and large macroeconomic volatility that characterize most emerging market

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[2] It should be pointed out that this list of countries is both restrictive and generous. It is restrictive because it only includes countries that were adopting IT in the Fall 2000 and therefore excludes two countries (Finland and Spain) that adopted IT to manage their transition to the Euro (furthermore, Sterne, 1999, found 55 countries with some sort of explicit inflation target). It is generous because, while Colombia, Mexico, and Peru announce inflation targets, these countries are not unanimously considered to be inflation targeters (Mishkin and Savastano, 2000). While Colombia and Peru announce inflation targets but *de facto* follow some sort of exchange rate peg, Mexico started its floating regime with a policy of monetary targeting and it is now converging to a policy of IT (Carstens and Werner, 1999).

[3] Another problem with nominal income targeting is the following: Imagine that the country is emerging from a recession and grows over the potential. Without an adjustment of the nominal income this would require a contractionary monetary policy and frustrate the economy.

countries. Therefore, conducting monetary policy without an explicit nominal anchor can be extremely dangerous and will not be considered as a viable option for an emerging market country.

III. Inflation Targeting

Inflation targeting is a monetary policy framework based on the announcement of a numerical target for inflation and an institutional commitment to reach the announced target. The basic idea of IT is therefore extremely simple: the central bank (or the government) announces a target for future inflation and uses all the available information and monetary policy instruments to attain this target. This framework is particularly appealing because it gives the central bank a well-defined goal as well as the instruments to achieve it. An additional advantage of inflation targeting is that inflation is clearly understood by the public (as opposite to monetary aggregates) and, therefore, IT is a transparent policy that increases the accountability of the central bank. In Stanley Fischer's (2000) words, inflation targeting "is an answer to many of the dilemmas of monetary policy that were wrestled with for nearly fifty years after the collapse of the gold standard." The above statement begs for the question: why did it take us fifty years (forty for the New Zealanders) to discover that such a simple framework can solve most of the dilemmas of monetary policy? The first answer to this question lies in the fact that, until the 1970s, economists and policy-makers believed in the presence of a long-run trade-off between inflation and unemployment and supported activist monetary policies aimed at keeping output close to its full-employment level. However, following Friedman (1968) and Phelps (1968), there is now a consensus that such a long-run trade-off does not exist and that the primary long-run objective of monetary policy should be price stability. The second answer relates to the fact that, in spite of its conceptual simplicity, inflation targeting is rather complex to implement.

Before discussing the theoretical foundations of IT, it is important to define the concept of Taylor Rule. A Taylor Rule (Taylor, 1993) is a policy rule that models short-term nominal interest rate as a function of the deviation of inflation from a target and the deviation of real GDP from potential GDP. In general, a Taylor rule has the form:

$$i_t = r + \pi_t + \alpha(\pi_t - \pi^*) + \beta(y_t - y^*). \tag{1}$$

Therefore, short term nominal interest rate (i_t) depends on five factors: (i) the equilibrium real interest rate (r); (ii) current and target inflation rates (π_t and π^*); (iii) an inflation gap adjustment rate (α) that specifies how the nominal interest rate should move when actual inflation deviates from its target; (iv) current and potential real GDP (y_t and y^*); and (v) an output gap adjustment rate (β) that specifies how the nominal interest rate should move when current GDP deviates from potential GDP. John Taylor (1993) suggests that a rule with $r = 2$, $\alpha = 0.5$, and $\beta = 0.5$ fits well the behavior of the US Federal Reserve. This rule assumes that the equilibrium real interest rate is 2 percent and that the central bank reacts to a 1 percent change in inflation with a 1.5 percent change of the nominal interest rate. Therefore, the real interest rate increases when inflation goes above its target and decreases when inflation goes below its target. At the same time, the nominal interest rate increases when GDP is above potential GDP and decreases when it is below potential GDP. Equation (1) is helpful in discussing the concepts of *strict* and *flexible* IT (Svensson, 1997a). Under *strict* IT, the only objective of the central bank is to reach its inflation target. This is equivalent to a Taylor rule with $\alpha = \infty$ and $\beta = 0$. In practice, no central banker is a strict inflation targeter (or, in the words of Mervyn King,[4] an "Inflation nutter"); most central banks adopt a *flexible* inflation target which, while still considering price stability as the main long-run objective of monetary policy, makes some attempt to stabilize other real variables (often output and the real exchange). This is exactly what a Taylor rule does; besides keeping check on inflation, it also gives some weight to output fluctuations.

Inflation Targeting and Taylor Rules in Theory

This section discusses the theoretical foundation of inflation targeting starting from a closed economy setting and then moving to an open economy setting. Any survey of IT should start by mentioning the work of Lars Svensson, the economist who has set the research agenda on this topic and has provided many seminal contributions.[5] Svensson (1999) discusses IT in the context of monetary policy rules and compares IT with monetary and nominal income targeting. His main conclusion is that, given the lags in

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[4] As quoted in Fischer (2000).
[5] Most of Svensson's papers can be downloaded from his homepage at http://www.iies.su.se/leosven. John Taylor and Gianpaolo Benigno maintain two other homepages with rich collections of papers on monetary policy rules: http://www.stanford.edu/~johntayl/PolRulLink.htm, and http://socrates.berkeley.edu/~gbenigno/mpoe.htm.

the effects of monetary policy, the central bank should generate conditional forecasts of target variables and use these conditional forecasts as intermediate target variables.[6] When he compares IT with other targeting rules, Svensson (1999) finds that monetary targeting can be a useful intermediate target. However, because of velocity shocks, inflation and monetary targets may diverge. Therefore, the central bank needs to clearly establish which target has priority over the other. Svensson (1999) discusses that, if the central bank gives priority to the inflation objective (as the Bundesbank seems to do), monetary targeting can be seen as undercover IT. While this policy may be efficient in reaching the inflation objective, it lacks transparency. On the other hand, if the central bank gives priority to the monetary target, the policy will be transparent but inefficient in stabilizing inflation. Therefore, Svensson (1999) concludes that, whereas IT is both transparent and efficient, monetary targeting will be either efficient but non-transparent or transparent but inefficient. He also finds that (flexible) inflation targeting is superior to nominal income targeting because, while the latter imposes the same (and constant) weight on output and inflation stabilization, the former allows for a loss function with a variable marginal rate of substitution between inflation and output gaps. Svensson's (1999) discussion ends by mentioning that the main problem of monetary and nominal income targeting is that the transmission mechanism from monetary policy to inflation is rather complex and goes through many channels that do not directly affect money or nominal GDP. While inflation targeting (or inflation forecast targeting) can keep track of all these channels, money supply or nominal GDP targeting cannot. In this sense, money supply and nominal GDP are not optimal intermediate targets because they are not the best predictors of inflation. It should be pointed out that, while most of Svensson's work finds support for flexible IT and gradual convergence to the target (Svensson, 1997b, see also Ball, 1997), Goodfriend and King (1997) find that the optimal policy is consistent with strict IT. These different results are due to the fact that, contrary to Ball and Svensson, Goodfriend and King do not consider the possibility of cost-push inflation (see Clarida et al., 1999).[7]

Clarida et al. (1999) summarize the recent research on New Keynesian macroeconomics in a micro-founded (or better, micro-foundable) model with nominal

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[6] Svensson and Woodford (1999) examine several issues related to the design of inflation-forecast targeting rules.
[7] Walsh (1999) and Ball (2000) concentrate on how the nature of external shocks (and their time series properties) affects the choice of the optimal monetary policy rule.

price rigidities. One of the main attractions of their paper is that, starting from the first principles, Clarida et al. derive a model based on two equations familiar to many economists trained in the Keynesian tradition: an "almost" standard IS curve and an "almost" standard expectation augmented Phillips curve.[8] Using this simple framework, Clarida et al. derive the optimal policies of a central bank that minimizes an intertemporal Barro-Gordon loss function.[9] By deriving the optimal policy under discretion they obtain the following results: (i) the optimal policy incorporates flexible IT but not strict (or extreme) IT (unless there is no cost-push inflation and no concern for output stabilization); (ii) the real interest rate should increase in response to an increase in expected inflation, i.e., the optimal policy is consistent with a Taylor rule and; (iii) the nominal interest rate should move to offset demand shocks but accommodate shocks to potential output. By studying the central bank's behavior under commitment, Clarida et al. also find that, besides eliminating the inflation bias of discretionary monetary policy, a credible commitment to fight inflation can improve the current output/inflation trade-off. While this last result may seem extremely good news for countries that decide to move to an IT framework, Bernanke et al. (1999), and Cecchetti and Ehrmann (1999) find no empirical support for a reduced output/inflation trade-off (of course, this could simply mean that, in the countries studied by these authors, IT was not credible when originally introduced).

One possible critique to inflation targeting under the form of a Taylor Rule is that this policy can generate unpleasant equilibria with steady states arbitrarily close to a liquidity trap (Benhabib et al., 1999). From a more practical point of view, Friedman and Kuttner (1996) claim that excessive emphasis on inflation stabilization could lead to large output volatility. Supporters of IT reply to this last critique by claiming that IT should not be seen as a strict rule but more like a framework that allows conducting monetary policy with "constrained discretion" (Bernanke and Mishkin, 1997) and

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[8] The IS curve is almost standard because output is a function of both expected real interest rate and expected future output. The Phillips curve is almost standard because output depends on expected future inflation rather than on expected current inflation.

[9] Defined as a loss function where the central bank's utility depends on the deviation of output and inflation from their target levels. Formally, the loss function is:

$$L = \frac{1}{2} E_t \left\{ \sum_{i=0}^{\infty} \beta^i \left[\alpha (y_{t+i} - y*)^2 + (\pi_{t+i} - \pi*)^2 \right] \right\}.$$

which, thanks to the transparency of the policy, can provide discipline and accountability to the monetary policy-making institutions.[10]

The papers surveyed so far study IT in a closed economy setting and their main aim is to describe (or prescribe) monetary policy making in the US or the Euro area. I now move to papers that study optimal policy making in an open economy setting and therefore are more relevant for emerging markets. Ball (1999) develops a simple model based on three equations: (i) a backward looking open-economy IS curve (where output depends on real interest rate, real exchange rate, and lagged output); (ii) an open economy Phillips curve (where inflation depends on changes in lagged output and exchange rate); and (iii) an uncovered interest parity that describes the equilibrium in the asset market. The first result derived by Ball is that the impact on inflation of a given interest rate adjustment is larger in the open economy than in the closed economy. This is because, in the open economy, the interest rate affects inflation both via the output channel and the exchange rate channel (with the latter channel being faster than the former). Ball's main result is that, while the optimal policy in the closed economy can be described with a Taylor Rule where the interest rate depends on output and inflation, in the open economy, the monetary policy instrument should be a combination of the exchange rate and the interest rate. Furthermore, in the open economy, the target variables should be output, inflation, and the lagged real exchange rate. Therefore, Ball's theoretical results are consistent with the practice of many inflation targeting central banks (Canada, New Zealand, and Sweden) of defining their policy instrument as a "Monetary Condition Index" (i.e., a linear combination of the exchange rate and a nominal short-term interest rate). In Ball's model, the weight attached to the exchange rate is heavily dependent on the degree of passthrough from exchange rate to prices. Ball calibrates his parameters to New Zealand and, by assuming a passthrough of 0.2, he finds that the monetary condition index should assign weights of 0.75 to the nominal interest rate and 0.25 to the real exchange rate. Higher levels of passthrough are likely to generate monetary condition indexes with a larger weight on the exchange rate.[11] Ball concludes by pointing out that in the open economy setting strict IT can be

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[10] An alternative definition is provided by Masson et al. (1996) according to whom IT is a "policy structure with continuous feedback and a mildly discretionary policy mode." On the other side of the debate, Calvo (2000) suspects that, in many emerging market countries, constrained (or mild) discretion will just mean pure discretion.

[11] High passthrough from exchange rate to prices could be an explanation for the exchange rate stabilization policies that seems to characterize some emerging market countries with a formally floating exchange rate and IT framework (Hausmann et al., 1999, Calvo and Reinhart, 2000a, 2000b).

dangerous (in the sense that it may generate large economic fluctuations) but long-run IT (i.e., a monetary policy framework that allows for a gradual adjustment towards the target) can be optimal. According to Svensson (2000), a key weakness of Ball (1999) is that the latter is a backward looking model where the exchange rate equation does not include an expectation term and therefore may violate uncovered interest parity. Svensson (2000) shows that introducing forward-looking behavior greatly complicates the analysis and yields results that are somehow different from those derived by Ball. In fact, while Svensson agrees with Ball in finding that flexible IT is the optimal policy and that the Taylor Rule is not efficient,[12] he finds no evidence in support of the Monetary Condition Index advocated by Ball. In particular, Svensson shows that, even though a monetary condition index could be used as a control variable, the outcome is the same as using the short-term interest rate and hence there is no advantage in targeting the exchange rate. Monacelli (1999), however, derives a micro-founded model of a small open economy and finds that the monetary authority should include a direct exchange rate feedback in its policy rule. It is fair to conclude that the debate on whether an open economy should adopt pure IT or also include a concern for exchange rate stabilization is still open (later we will see that some characteristics of emerging market countries generate additional reasons for targeting the nominal exchange rate). An interesting contribution to this debate is provided by Parrado (1999) who uses the dynamic neo-Keynesian framework of Clarida et. al (1999) to develop an open economy model calibrated with the parameters of an inflation targeting emerging market country (Chile). His main conclusions are that in most cases non-tradable (or domestic) IT dominates CPI IT and that the Central Bank of Chile should give greater flexibility to the exchange rate.

Inflation Targeting in Practice

After having discussed the theoretical debate on inflation targeting, I now move on to IT in practice. In particular, the next three subsections will describe what are the main decisions and steps that need to be taken by a country aiming to adopt an IT framework, what are the necessary economic and political conditions for the implementation of an IT framework, and what is the possibility of implementing inflation targeting in emerging markets.

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[12] Support for a Taylor rule is instead found by Ghironi (1999) and Leitmo (1999).

Inflation Targeting in Practice: Implementation Issues

Bernanke et al. (1999) identify the following operational issues (mostly revolving around the flexibility/credibility trade-off) in the implementation of an inflation targeting framework: (i) should the central bank adopt strict or flexible IT? (ii) who decides the target and who is accountable? (iii) should the central bank target inflation or the price-level? (iv) what measure of inflation should be used? (v) what should be the numerical value of the target? (vi) should the target be a point or a range? (vii) what should be the horizon of the target? (viii) what communication methods should be used?

The first decision that needs to be taken by a central bank that wants to introduce an IT framework is whether the aim of the policy should be the achievement of the inflation target in the shortest possible time without consideration for output stabilization (strict IT) or the adjustment to the inflation target should be gradual with some consideration for output stabilization (flexible IT). While missing a target can generate some credibility costs, the previous section has clearly shown that most theoretical models tend to prescribe flexible IT; in fact, this is the policy adopted by most inflation targeting countries.

Next, it is necessary to decide who sets the target and who is responsible for achieving it. In the design of the institutional structure of a central bank there is always tension between the necessity of having a central bank that is independent from political pressure and the fact that a democratic society requires some accountability of the policymaking process. Assigning to the central bank *instrument independence* but not *goal independence* can solve this tension. With an arrangement of this type, the ultimate goal of monetary policy (for instance the inflation target) is set by a politically accountable decision maker (the government or the parliament) but the central bank is completely independent in the choice of the instruments of monetary policy necessary to reach this goal.

The third question is: should the central bank target inflation or the price level (possibly with an upward drift)? While this question is at the base of some academic debate, most economists recognize that price level targeting would generate an excessive volatility of real output and therefore find IT superior to price level targeting (however, see Lilico, 2000, for a view in favor of price targeting).[13] In practice, even

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[13] The main problem with price level targeting is that, while the inflation targeting bygones are bygones, with price level targeting an overshooting of the target needs to be followed by a decrease in prices.

though most central banks have a statute that prescribes the achievement of price stability, I am not aware of any central bank that targets the price level.

The fourth question concerns the measure of inflation that should be targeted. In particular, should the central bank target CPI inflation or non-tradable inflation? While some theoretical models find that targeting non-tradable inflation is superior to targeting CPI inflation, all the IT central banks tend to target CPI inflation. However, while some central banks (Brazil, Israel, Sweden, Spain) define the target in terms of headline (or overall) CPI inflation, other central banks (Australia, New Zealand, United Kingdom) target "core" (or trend) inflation (still, other countries, like Canada, use both definitions). The latter excludes some volatile components (food and energy, for instance) of the price index and has the advantage of preventing monetary policy from over-reacting to transitory supply shocks. The main drawback of core inflation is that this measure is not as transparent and clearly understood by the public as headline inflation. Hence, as in many other issues, the choice of what kind of inflation index the central bank should target implies a trade-off between flexibility (achieved by targeting core inflation) and transparency (achieved by targeting headline inflation) (Bernanke et al. 1999).

The fifth implementation issue concerns the numerical value of the target. While most central bank statutes require price stability, there is a widespread agreement that the inflation target should be low but positive. There are at least four reasons for choosing a positive inflation target. First of all, with a zero inflation target, small undershooting of the target would generate a deflation and could arm the functioning of the financial system. Second, because of substitution effects and quality improvements, inflation estimates are likely to overstate the true increase in prices by as much as 2 percent (Boskin et al. 1996). Therefore a 2 percent inflation rate may be equivalent to 0 percent actual inflation. Third, in the presence of downward rigidity in nominal wages, real wages adjustments will require some inflation. On the basis of this observation, Akerlof et al. (1996) find that, for extremely low levels of inflation, there may be a long-run trade-off between inflation and unemployment. Fourth, as the nominal interest rate cannot be negative, with zero inflation it is impossible to have a negative real rate. In practice, most inflation targeting developed countries adopt a target in the 2 to 3 percent range. However, while most developed countries adopted an IT framework *after* having successfully reduced inflation, some developing countries may use this monetary policy framework as a method to reduce inflation. In this environment, the

choice of the target is more difficult. On the one hand, a low target may be helpful in signaling that the central bank is serious about fighting inflation. On the other hand, a target that is too low may cause excessive strain on the real economy and, if overshot, may have credibility costs.

The sixth implementation issue is whether the target should be expressed as a point (i.e., 2 percent) or a range (i.e., 1.5 to 2.5 percent). A range has the advantage of being easier to achieve than a point but, exactly for this reason, missing a range may have larger credibility costs than missing a point target. An advantage of adopting an IT range is that this clearly shows that undershooting the range is as dangerous as overshooting it (sometimes, people tend to make the error of thinking that less inflation is always better but, in 1997 and 1998, Peru and Chile paid a high cost for undershooting their inflation targets). However, a range may lead the public to focus its expectation on the edge rather than on the midpoint. In practice, Canada, Israel, New Zealand, and Sweden target a range, while Australia and the United Kingdom are closer to targeting a point (a "thick" point in the case of Australia).

The seventh implementation issue is the choice of the policy horizon or the time frame in which the target should be achieved. Bernanke et al. (1999) claim that very short and very long policy horizons are meaningless because, with very short horizons (less than one year), it may be impossible to reach the inflation target at a reasonable cost and very long targets would play little role in setting inflation expectations.[14] As for many other choices, the length of the target needs to be decided by considering the transparency/flexibility trade-off. In practice, Bernanke et al. (1999) suggest that the policy horizon should be in the range of 1 to 4 years and discuss that the Bundesbank's policy of announcing both a short-term monetary target and a long-run inflation target is an efficient method to communicate its policy stance.

The eighth and last implementation issue concerns the method with which the central bank communicates its IT policy to the public. This is a very important issue because IT is an exercise in transparency. Accountability toward the public is a necessary condition to generate the constrained discretion that characterizes this monetary policy framework. In particular, the central bank should produce regular reports that describe the central bank's monetary policy strategy, the state of the economy, private sector and official estimates of inflation (a useful instrument is the fan chart that provides a clear

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[14] A very short horizon could also produce "instrument instability" (Masson et al., 1997).

description of the probability of different inflation paths), the value of the target, and, if the target is missed, the report should provide clear explanations of the reasons that that led to the overshooting or undershooting of the target. Some IT central banks communicate with the public by issuing "inflation reports" that clearly explain the objectives of monetary policy and provide a non-technical description of the status of the economy and inflation.[15] The ultimate purpose of the inflation report is to increase transparency and educate the public about what can and cannot be achieved with monetary policy. By clearly stating what are the main trade-offs of monetary policy, the central bank can create an "audience" (Lohman, 2000) for price stability and protect itself from political pressure aimed at manipulating the short-run trade-off between output and inflation.

Inflation Targeting in Practice: Necessary Conditions

The key reference in the discussion of the necessary economic and political conditions for the implementation of a successful IT framework is Masson et al. (1997). According to these authors, the necessary conditions for implementing IT are the following: (i) the presence of an independent central bank; (ii) lack of binding commitments to other nominal variables (like the exchange rate) and; (iii) the technical ability of developing forecast models for the variables of interest (inflation in particular).

The first necessary condition concerns central bank independence. As discussed in the previous section, the central bank does not need to be fully independent (i.e., having goal independence) but it needs to be able to freely adjust its monetary policy instruments (i.e., the central bank needs to be instrument independent). A necessary condition for achieving instrument independency is lack of fiscal dominance. Lack of fiscal dominance means that the government is able to fully finance its public expenditure with either tax revenues or by selling debt instruments to the private sector and, therefore, it does not need to rely on seigniorage (shallow capital markets and financial fragility are both manifestations and outcomes of fiscal dominance). Fiscal dominance will generate inflation episodes that are likely to create widespread indexation (or currency substitution) mechanisms that weaken the effectiveness of monetary policy (Masson et al., 1997).

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[15] Inflation reports, now used by many central banks, were first introduced by the Bank of England. The BOE inflation reports can be downloaded from:
http://www.bankofengland.co.uk/inflationreport/index.htm.

The second necessary condition for the adoption of an IT framework is the absence of a firm commitment to other nominal variables. This statement should be interpreted as follows: inflation targeting central banks can target other nominal variables (specifically, exchange rate and monetary aggregates) but they should make clear that, if there is a conflict between the different targets, the inflation target will override the other targets. In practice, most central banks target more than one nominal variable (in a survey of 91 central banks, Sterne, 1999, found that 24 percent of them target both inflation and money and only 19 percent of them target inflation or money alone). The Bundesbank, for instance, announces both a short-term monetary target and a long-term inflation target and adopts the practice of overshooting or undershooting the monetary target whenever this is not consistent with the long-run inflation target. Other central banks (Chile and Israel, for instance; see Parrado, 1999 and Leiderman and Bar-Or, 1999) are managing their transition from exchange rate targeting to full-fledged IT by targeting both variables (with a decreasing weight on the exchange rate). It should be pointed out that targeting inflation and money supply and targeting inflation and exchange rate are not equivalent policies. While overshooting a monetary target has low political costs, overshooting an exchange rate target in a small (possibly partly dollarized) open economy where the public closely follows the news regarding the exchange rate could instead have large political costs.[16]

Finally, as IT is a forward-looking monetary policy framework, its adoption requires the technical capacity to model and forecast inflation (Svensson, 1997b, points out that IT regimes should use forecasted inflation as intermediate target). Producing inflation forecasts is, however, a difficult exercise. While VAR models may produce efficient estimations of future inflation, these models are subject to the Lucas critique and therefore their use to dictate monetary policy is problematic. For this reason, Bernanke and Woodford (1997) suggest that the central bank should not use inflation forecasts but base its decision on a structural model of the economy. In practice, IT central banks base their decisions on more than one model and consider both VAR estimates and the prediction of more complex structural models.

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[16] This is not only the case of small developing economies. Very often there is some sense of pride associated with the national currency (the support for the *franc fort* policy is one example in case). For instance, most European citizens know the exact Euro/Dollar exchange rate and, at the time of writing (October, 2000), are somewhat worried by the weak Euro. As a consequence, European policymakers need to worry about the value of the Euro even though its swings against the dollar have small effects on European inflation and economic conditions. At the same time, most US voters barely know what a Euro is and, therefore, American policymakers are more free to follow a "benign neglect" exchange rate policy.

The Scope for Inflation Targeting in Emerging Markets

While most developed countries satisfy the necessary conditions for the successful implementation of an IT framework, this is not the case for most emerging countries.[17] In particular, emerging market countries, besides having lower GDP per capita, differ from high income countries in at least 5 other factors: (i) contrary to most developed countries, many emerging market countries have high levels of liability dollarization and therefore, in order to prevent balance-sheet deterioration and limit the risk of a financial crisis, they need to limit exchange rate fluctuations. However, Cespedes, Chang and Velasco (2000) make the point that a flexible exchange rate may be preferable to a fixed exchange rate even in the presence of liability dollarization; (ii) emerging market countries tend to have relatively high passthrough from exchange rate to inflation which limits the effectiveness of monetary policy and, as in the case of liability dollarization, generates the need of exchange rate smoothing (Calvo, 2000, forcefully makes the point that, with high levels of passthrough, IT and exchange rate targeting are equivalent); (iii) while many developed countries have adopted IT after having successfully reduced inflation and have central banks with some credibility capital, many emerging market countries have relatively high levels of inflation and central banks with no credibility capital; (iv) in emerging market countries the effectiveness of monetary policy may be limited by the presence of government-controlled prices; and (v) while many developed countries have worked hard to put their public finances in order, many emerging market countries still have relatively large budget deficits and, in periods of crisis, limited access to the international capital market. Furthermore, developed countries have higher capacities to tax and tend to finance their deficit domestically. Therefore, they have greater ability to conduct counter cyclical fiscal policies (see Section 4).

The first two points discussed above relate to the need of exchange change rate stabilization and therefore the presence of an additional nominal target (Calvo and Reinhart, 2000a, 2000b, and Hausmann et al., 1999 discuss the links between the presence of dollar liabilities and high passthrough and exchange rate stabilization). The third and fourth and fifth points have to do with the limited scope for monetary policy in an environment where the central bank enjoys low credibility, there is a weak banking system, and where there is widespread price control. Finally, the sixth point has to do

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[17] This statement holds with the qualification that the European countries that belong to the Euro should be considered as a single country.

with the presence of fiscal dominance and therefore the impossibility of having a central bank with instrument independence. On the positive side, while low-income countries may lack the technical and institutional capacity to implement IT, this does not seem to be a constraint for middle income emerging countries that, in general, have central banks with highly qualified staff.

Masson et al. (1997) apply the freedom from fiscal dominance and firm commitments to other nominal targets criteria to a sample of 79 developed and developing countries. They find that, in most developing countries, fiscal dominance and an underdeveloped and fragile financial system are serious obstacles to the conduct of an independent monetary policy. However, they identify a small group of "high-middle income" countries (Korea, Indonesia, Mexico, and South Africa) where these constraints are less severe. The fragility of the banking system is a serious concern for the implementation of IT in emerging market countries. In fact, while developed countries have a lender of last resort that acts more like a borrower of last resort (i.e., the lender of last resort finances its operation by issuing bonds rather than money, Calvo 2000b), this is not the case for emerging markets. In the absence of such a borrower of last resort, a fragile banking system will generate quasi-fiscal financial liabilities that, if financed by issuing money, could cause a surge in inflation.

Masson et al. (1997) find it more difficult to assess whether the countries identified as possible inflation targeters can conduct monetary policy without having to explicitly worry about the behavior of the exchange rate. A fair conclusion is that, emerging market countries that want to adopt an IT framework will have to manage a transition period during which the central bank will have to target both inflation and the exchange rate and, whenever these two objectives collide, make discretionary decision on which objective should dominate the other. The experiences of Chile, Israel, and Mexico, seem to indicate that passthrough may decrease over time and that, in the initial phases of the transition to IT, the exchange rate target will often dominate the inflation target and in later phases, the inflation target will dominate the exchange rate target (Mishkin and Savastano, 2000, and Leiderman and Bar-Or, 1999).

An additional problem is that the choice of an inflation target requires political consensus on what is an optimal and attainable medium term inflation rate, but in some emerging market countries there is no agreement on the fact that the ultimate aim of the central bank should be price stability and therefore there is limited political support for IT (Leiderman and Bar-Or, 1999). Even with these caveats, Masson et al. (1997)

indicate that there is some agreement on the fact that the medium term target for emerging market countries should be higher than that of industrial countries and they suggest a 4 to 8 percent range. Another problem with IT in emerging market countries is that, while developed countries adopted the IT framework after having successfully reduced inflation, some emerging market countries still have double digit levels of inflation. These high levels of inflation are likely to cause imprecise inflation forecasts and lead the central bank to frequently miss its targets. In turn, this may limit the central bank's ability to build credibility. In presence of high levels of inflation, the approach to IT needs to be gradual. Chile, for instance, started its IT program in September 1990 by announcing an inflation target of 27 percent and slowly converged to the 3.5 percent inflation target announced for the year 2000 (Morandé and Schmidt-Hebbel, 2000). Initially, the Central Bank of Chile adopted the strategy of interpreting the target as an official forecast of future inflation and, only after having successfully met the target and brought inflation to lower levels, did the Central Bank start hardening the target and betting its credibility on it.

Finally, the presence of widespread price controls requires a high degree of coordination between monetary and fiscal authorities and it imposes an additional limitation to the ability to forecast the future path of inflation and therefore to the conduct and effectiveness of monetary policy. To limit this problem, the Central Bank of the Czech Republic excludes government-controlled prices from its inflation target (Coats, 2000).

It should be pointed out that Brazil was not among the countries identified by the IMF staff survey conducted by Masson et al. (1997) as potential inflation targeters. Therefore, even though it is too early to cast a judgment, the so-far successful Brazilian experience with IT seems to indicate that this policy framework can also be adopted by a country that does not fully satisfy the criteria mentioned above (fiscal dominance is a serious issue for the Brazilian economy). The Brazilian experience also indicates that the adoption of an IT framework can be an incentive to build the institutional framework and technical skills necessary to manage such a framework. The description by Bogdanski et al. (1999) of the process that led Brazil to the implementation of IT is particularly telling. After the forced float of the *real* on January 15, 1999, most of the Central Bank's Board of Directors was replaced. The new Board immediately recognized the need for a monetary anchor that would substitute the abandoned crawling peg and decided to adopt an IT framework. However, besides fiscal

dominance, there were two main practical constraints to the implementation of such a framework: the Central Bank did not have instrument independence and there was a lack of technical skills. In particular, the Central Bank did not have a research department and very few staff members had any knowledge of the functioning of an IT framework. The first problem was attacked by convincing the President and his economic team that IT could work in Brazil. This led to a formal adoption of IT with a decree that established that: "The Central Bank is given the responsibility to implement the policies necessary to achieve the target."[18] At the same time, the Central Bank started building technical capacity by organizing an international seminar on IT (the proceedings of this seminar are published in Blejer et al., 2000), by creating a research department with a research area specifically designated to study IT, and by developing models of the transmission mechanisms of monetary policy. Even though it is too early to discuss the success or failure of IT in Brazil, the mechanism so far has worked well and the Brazilian experience has proved that, under emergency condition, such a mechanism can be implemented in a very short time.

Inflation Targeting: Conclusions

Inflation targeting is a relatively new framework for conducting monetary policy that has the advantage of providing a nominal anchor to monetary policy with a transparent and accountable process in which the choice of the policy instruments gives an explicit role to the lags of monetary policy (Masson et al., 1999). Although the original debate on IT was set into the "rules versus discretion" realm (Friedman and Kuttner, 1996), supporters of inflation targeting point out that IT is not a monetary policy rule, but a framework for conducting monetary policy under "constrained discretion" (Bernanke and Mishkin, 1996).

Despite the fact that an analysis of the necessary conditions for adopting IT reveals that only few emerging market countries are ready for such a monetary framework, some emerging market countries that do not seem to fulfill these necessary conditions have successfully adopted IT. While supporters of IT use the experience of these countries as an indication that this policy framework can be successfully implemented by emerging market countries (Mishkin, 2000 and Mishkin and Savastano, 2000), other observers are more skeptical and point out that fiscal dominance and the necessity of exchange rate stabilization will lead to either the collapse of the IT framework

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

(Dornbusch, 1999, is particularly skeptical of the possibility of success of the Brazilian experiment) or to an undercover exchange rate target (Calvo and Reinhart, 2000a, 2000b, Morón and Castro, 2000). Only time will tell who is right.[19]

While IT has some clear advantages in terms of limiting discretionary monetary policy and providing a transparent framework for the conduct of monetary policy, the novelty value of this policy framework has sometimes exaggerated its benefits (Haldane, 1995) and, in some cases, led to the presumption that, by providing credibility to the central bank, IT could eliminate the inflation/output tradeoff and therefore allow painless inflation reduction policies. Bernanke et al. (1999) and Cecchetti and Ehrmann (1999) test this free lunch hypothesis and find no support for it. In particular, in their study of 9 advanced economies, Bernanke et al. find that IT does not grant lower sacrifice ratios (in their words there is "no credibility bonus" associated with IT). However, these authors find that, once low inflation is achieved, IT does not have any cost in terms of output stabilization. This result is different from Cecchetti and Ehrmann's (1999) finding that IT countries pay a small price in terms of output stabilization.[20] Therefore, while there is no consensus on whether IT has some costs in terms of output stabilization, there is a fundamental agreement that IT does not provide a free lunch; credibility gains will be slow to materialize and will need to be earned at the cost of output losses.

In concluding this section on inflation targeting, it should be mentioned that, in emerging market countries, inflation targeting has barely been tested and therefore their successful experience should not be over emphasized. The true test for IT will come when emerging market countries will have to cope with a financial crisis or a sudden slowdown in the US economy. As pointed out by The Economist (January 27, 2000), if IT emerging market countries will be able to successfully manage a financial crisis, IT would gain ultimate credibility, if not, we should expect another exchange rate and monetary policy craze.

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[19] Edwards and Savastano (1999) make the point that we still know too little about the experience of emerging markets with a flexible exchange rate.
[20] Jadresic (1999) provides a theoretical analysis of the effect of IT on output stability and find that targeting headline inflation can destabilize output.

IV. Monetary and Fiscal Policy Coordination

So far we have discussed monetary policy as the only policy instrument. In particular, references to coordination between fiscal and monetary policy were only made in the context of reducing fiscal dominance and limiting the effect of state controlled prices on the effectiveness of monetary policy. There are, however, other important interactions between monetary and fiscal policy; and the functioning of an IT framework requires an explicit consideration of these interactions. Taylor (2000a, 2000b) studies the role of fiscal policy in presence of a framework (like IT) where monetary policy systematically responds to the state of the economy. He starts by decomposing the government budget into a structural and a cyclical component. Formally:

$$B_t = SB + \lambda(y_t - y^*). \tag{2}$$

Where B_t is the actual government budget, SB is the structural government budget, and $\lambda(y_t - y^*)$ is the cyclical component of the budget. Next, he makes the point that, while discretionary policies amount to changes in SB, $\lambda(y_t - y^*)$ reflects the operation of the automatic fiscal stabilizers. In Taylor's opinion, counter cyclical fiscal policy should be restricted to the automatic stabilizers and the government should make an extremely limited use of discretionary fiscal policy. According to Taylor, there are three reasons for not using discretionary fiscal policies. First of all, there is the standard argument that the implementation lags of fiscal policy are much longer than those of monetary policy; consequently a discretionary fiscal policy could be implemented at a time when it is no longer needed. Second, an expansionary fiscal policy is harder to reverse than an expansionary monetary policy. Third, in an environment of forward looking monetary policy (such as IT), discretionary fiscal policies make the central bank's job more difficult. In fact, while it is rather easy to augment the central bank's econometric models with the effect of automatic stabilizers, the presence of discretionary fiscal policy makes forecasting a much more difficult exercise. In particular, the central bank will have to explicitly model both the effect of possible fiscal proposals and their probability of approval (in Taylor's words, discretionary fiscal policy requires political forecasting).

Taylor (2000a) shows that, when $\lambda=0.5$, Equation (2) fits well the counter-cyclical behavior of US fiscal policy. In emerging markets, however, things are not so neat and

easy. There is vast empirical evidence that, because of procyclicality of capital flows, high levels of external debt, high burden of interest payments, and limited creditworthiness, emerging market countries (at least in Latin America) have limited space for fiscal adjustment and often have procyclical fiscal policies (Gavin et al., 1996). These procyclical fiscal policies are partly due to the fact that, during periods of economic expansion, emerging market countries did not build surpluses and accumulate resources to be used during recessions. An explanation for this behavior can be found in the Talvi (1997) effect. Talvi shows that, during macroeconomic booms, the observed fiscal surplus may exaggerate the strength of the fiscal position and therefore lead to unsustainable fiscal outcomes.

Furthermore, the bad news does not stop here. Gavin et al. (1996) found that, in Latin America, seigniorage has been an important component of fiscal adjustments during recessions. Therefore, recessions are likely to put under further stress the monetary authorities: on the one hand, in presence of procyclical fiscal policies, monetary policy is the only countercyclical instrument and therefore the monetary authority should fight the recession by implementing an expansionary monetary policy. On the other hand, the deterioration of the fiscal position will generate inflationary expectations linked to the possible monetization of the deficit and the central bank will have to either accommodate these expectations or adopt a restrictive monetary policy that is likely to worsen the recession. Thus, emerging market countries with a weak fiscal position seem to face a very difficult dilemma. During recessions, when they mostly need an expansionary monetary policy, the central bank will have to keep a firm stance on monetary policy in order to maintain its credibility and prevent the formation of inflationary expectations.

The good news comes from the observation that procyclical fiscal policies are not an immutable characteristic of emerging market countries. In particular, Alesina et al. (1999) find that Latin American countries with better fiscal institutions have lower deficits and Gavin and Perotti (1997) show that good fiscal institutions either allow for countercyclical fiscal policies or, at least, allow means to reduce procyclicality. Therefore, building such institutions is key for the sustainability of a non-inflationary independent monetary policy (and, in general, for establishing any other nominal anchor). In particular, Gavin et al. (1996) suggest the following areas of reform: (i) emerging market countries should build fiscal institutions (like the National Fiscal Council proposed by Eichengreen et al., 1996) that require a balanced (or better a

surplus) in the structural budget, and allow to accumulate surpluses during periods of economic expansion; (ii) hard to reverse discretionary fiscal policies (tax cuts or changes in spending commitment) should only be implemented as a response to a change in economic fundamentals and should not be affected by the business cycle; (iii) emerging market countries should improve the capacity of the tax system but wihtout fully utilizing it. This should allow for some margin of adjustment during periods of crisis; (iv) emerging market countries should build institutions that, besides ensuring their "capacity" to repay their external debt, also guarantee their "willingness" to repay (Jappelli and Pagano, 1999). Institutions of this kind will help to reduce the sudden stop of capital flows that has characterized these countries (Calvo, 1998) and allow implementing counter cyclical fiscal policies.

In concluding this section, it should be mentioned that the East Asian crisis showed that a solid fiscal position is not a sufficient condition for avoiding financial and currency crises and for the implementation of a successful monetary policy. An additional necessary condition is the presence of a strong and well-supervised financial system.

V. Options for Egypt

The Central Bank of Egypt (CBE) is the institution in charge of conducting monetary policy and bank supervision in Egypt. The CBE was established in 1960 as an autonomous public institution, but was never granted formal independence. Although the Parliament is supposed to approve a law that would establish an independent central bank with price stability as its ultimate objective, this has not happened so far.

In light of the possible creation of an independent central bank, it is interesting to check whether Egypt passes the test for the adoption of an inflation targeting framework. The first pre-condition for the adoption of IT is the absence of fiscal dominance. Masson et al. (1997) measure fiscal dominance by looking at past seigniorage and government budget deficits. Until 1995, seigniorage was an important source of revenue for the Egyptian government and this was reflected by a high inflation rate that, in 1989, peaked at 29 percent. However, the economic reform program which started in 1991 led to tight monetary and fiscal policies and exchange rate stability that brought inflation down to the actual level of approximately 3 percent (7.2 percent in 1996, 4.6 percent in 1997, 4.2 percent in 1998, and 3.8 percent in 1999) and substantially reduced seigniorage revenues. At 1.3 percent of GDP, the 1998

government deficit was also rather low (well below the 6.4 average of the 1980-1995 period and the 20 percent peak of 1991). In fact, under the inflation and deficit aspects, Egypt would fit the criteria for joining the European Monetary Union![21] However, comparisons between emerging market countries like Egypt and more developed countries are dangerous. In particular, in a context of limited creditworthiness, a sudden stop of capital flows, lack of counter cyclical fiscal policies, and limited ability of collecting taxes, even small deficits could be extremely dangerous. The limited ability to collect taxes is an example in case. For instance, Egypt has a public debt to GDP ratio of approximately 90 percent (51 percent domestic and 39 percent external, source CBE). This is a high value but well below the debt to GDP ratios of many developed countries (Belgium, Italy, and Japan, for instance, have debt to GDP ratios well above 100 percent). Nevertheless, the limited tax capacity of Egypt makes the burden of the debt much heavier than in the case of developed countries. In particular, in 1998 Egypt had tax revenues equal to 16.6 percent of GDP (source, World Bank). Therefore, its public debt was equivalent to 5.5 years of tax revenues, and interest payment captured more than 33 percent of total tax revenue (or 24 percent of total revenues). At the same time, the Italian public debt (which is close to 120 percent of GDP) is equivalent to 4 years of tax revenues and —thanks to low interest rates— interest payment absorbs "only" 15 percent of tax revenues (an additional difference is that the public debt of most developed countries is financed domestically).

The second criterion for adopting inflation targeting is the lack of commitment to other nominal variables. It is clear that, given its commitment to an exchange rate peg, Egypt does not pass this criterion. In particular, in recent years, Egypt has strictly managed its exchange rate and fought against IMF requests of a 20-30 percent depreciation of its currency. During the spring-summer 1999, increasing concerns about a possible devaluation generated a large demand for dollar and, during August 1999, the market exchange rate (the one used by money changers) was 10 percent above the Central Bank's official exchange rate. By increasing interest rates and selling reserves (in the period between August and December 1999, the Central Bank lost a substantial amount of reserves) the Central Bank was able to bring market rates back in line with the official rate. However, the continuous slide of the euro increased the real

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[21] However, if the government will allow a controlled devaluation of the Egyptian Pound inflation will probably increase to 5 percent in 2001. Furthermore, the 1999 budget deficit was 4.2 percent of GDP and the 2000 budget deficit is estimated to be 3.9 percent of GDP.

appreciation of the Egyptian pound (up to 50 percent according to some estimates) and generated a serious trade deficit (now partly attenuated by the high price of oil). Under this unfavorable scenario, at the time of writing, the Egyptian pound is again under pressure: while in the last 6 months (April-October, 2000) the Central Bank has allowed for a small depreciation of the official rate (of approximately 3 percent), in the lasts two months, the exchange rate applied by money changers has depreciated by more than 7 percent (versus a 1.5 percent depreciation of the official exchange rate) generating a 6 percent difference between official and market rates (see Figure 1).

Fig. 1: Exchange Rate
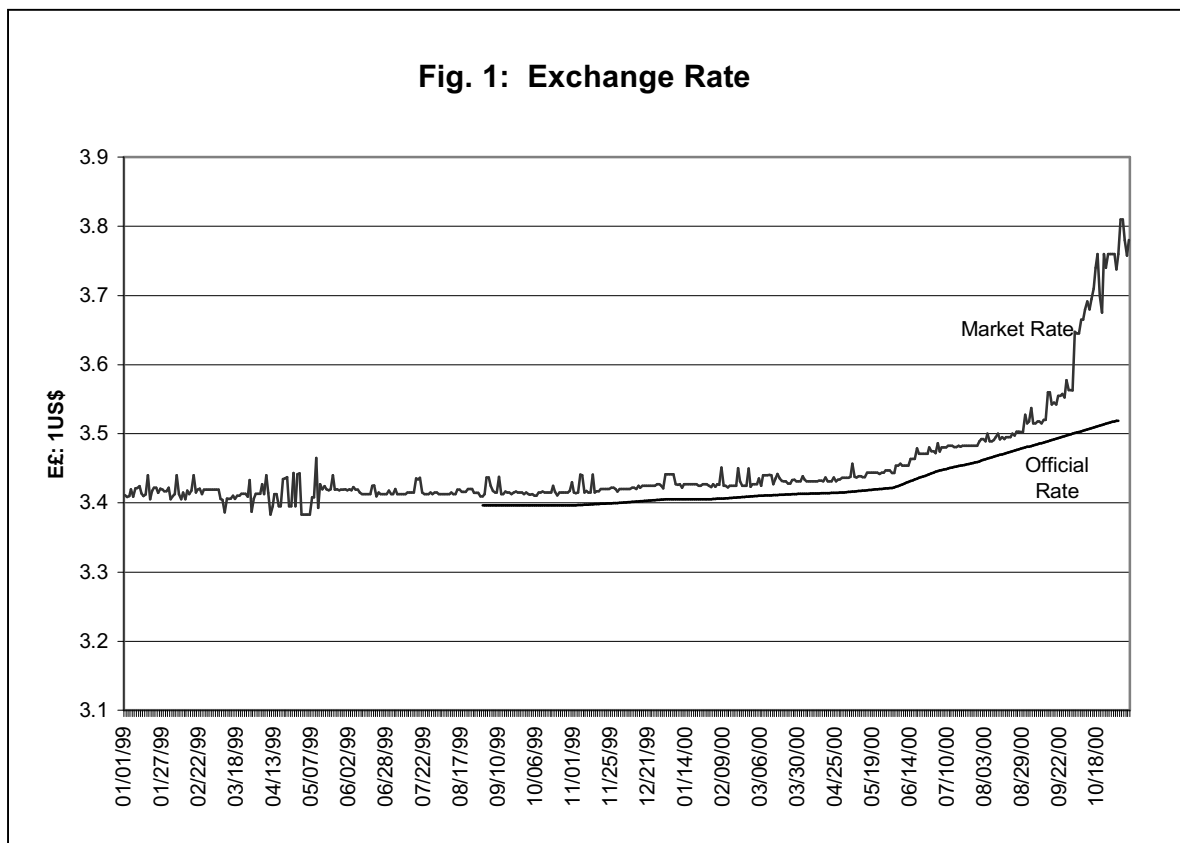
Source: Bloomberg and CBE.

While the Egyptian government fears that a depreciation of the Egyptian pound may lead to a surge of inflation and erode public confidence, Egypt may be in the optimal situation for a managed devaluation and the adoption of a more flexible exchange rate regime (there are rumors that the Egyptian government intends to move from a dollar peg to a euro-biased basket peg). In particular, there are two factors that could help the management of a smooth transition to a more flexible regime. The first factor is the weakness of the euro. As more than 30 percent of Egyptian imports are from countries in the Euro area, a weak euro should help limiting imported inflation. The second factor

is the reduction of the share of dollar denominated deposit from 51 percent of money supply in 1991 to approximately 20 percent in 2000. This lower level of currency substitution will limit the balance-sheet deterioration of a depreciation of the pound and facilitate the conduct of an independent monetary policy.

One factor that would make inflation targeting difficult to implement in Egypt is the dominant presence of the public sector in the economy (35 percent of the employed people have public sector jobs) and the widespread presence of subsidies and government controlled prices. Therefore, Egypt would have to adopt the strategy (adopted by the Czech Republic) of targeting an index that excludes government-controlled prices.

Finally, a necessary condition for a successful monetary policy is a strong, competitive, and well-regulated financial system. Under this aspect, Egypt fails to meet the criterion for adopting IT. In fact, the Egyptian banking system is still dominated by the public sector, with four large state-owned commercial banks (National Bank of Egypt, Bank of Alexandria, Banque du Caire, and Banque Misr) that control 70 percent of total bank assets and 60 percent of bank deposits (an additional 25 percent of total bank deposits are controlled by the state owned National Investment Bank, a long-term institute). Although the Parliament has recently passed a law that allows for banking privatization and some foreign banks have successfully acquired controlling majorities in their joint ventures with Egyptian banks, the Central Government has been reluctant to privatize state-owned banks. Egyptian banks tend to be rather conservative and concentrate on lending to the government and issuing only a small percentage of loans to the private sector (Caprio and Claessens, 1997).[22] Furthermore, state-owned banks have a large portfolio of politically motivated non-performing loans extended to state-owned enterprises. In 1991, the Government attempted to improve the soundness of the banking system by introducing deposit insurance, but so far, banks have been unwilling to contribute (Economist Intelligence Unit, 1999). In summary, the Egyptian banking system seems to be characterized by inefficient, overstaffed and poorly supervised banks.

Finally, even though the economic reform program of 1991 has led to a substantial reduction of Egypt's fiscal imbalances, the country's fiscal policy is still procyclical

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[22] If we add to this the fact that private sector lending is dominated by short-term loans, it is easy to conclude that the Egyptian banking system is not very efficient in mobilizing resources towards the best investment opportunities.

(Fig. 2). Therefore, Egypt should develop budgetary institutions that allow for a countercyclical fiscal policy.

Figure 2. The State Budget
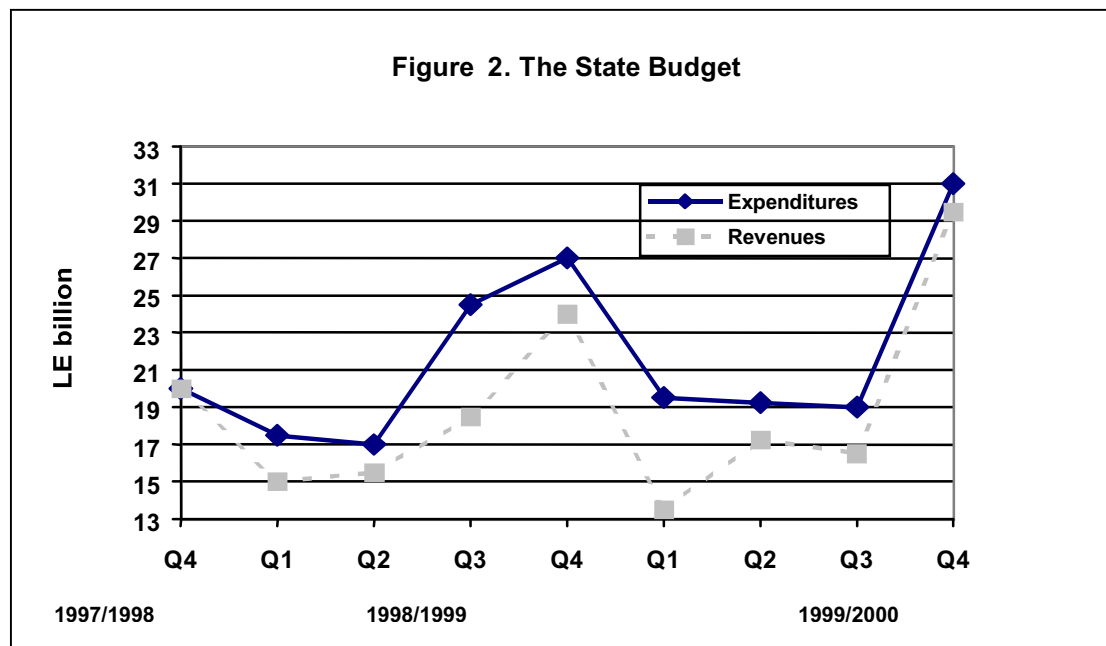
Source: CBE.

Given the above considerations, it is hard to predict whether Egypt could abandon its exchange rate anchor and adopt an inflation targeting framework. On the one hand, the recent inflation and fiscal records and the reduction of currency substitution indicate that inflation targeting could be a promising avenue for Egypt. On the other hand, one should remember that low inflation and greater fiscal restraint were achieved under the strict discipline of a fixed exchange rate. This leads to the conclusion that, if Egypt wants to adopt a flexible exchange rate, it would have to follow an extremely gradual strategy and allow for a period during which the central bank should target both exchange rate and inflation.[23]

VI. Conclusion

The purpose of this paper was to survey possible monetary policy options for emerging market countries. As the paper did not want to enter into the fix versus flex debate, it only surveyed monetary policy options for countries that decide to have a flexible exchange rate. After making the point that the conduct of monetary policy requires a

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[23] Given the now frequent and costly attacks to its currency, another alternative would be to move to a stronger peg.

nominal anchor and having surveyed different types of nominal anchors, the paper concluded that most academics and policymakers agree on the fact that inflation targeting should be the nominal anchor of choice. Next, the paper described the main characteristics of an inflation-targeting regime and discussed its applicability to emerging market countries. After discussing monetary policy, the paper recognized the necessity of coordination between fiscal and monetary policy and pointed out that, in order to conduct countercyclical fiscal policies, emerging market countries need to build fiscal institutions that allow accumulating surpluses during periods of economic expansion. Finally, the paper studied the case of Egypt and found that this country fits some, but not all, of the necessary conditions for the successful implementation of an inflation targeting framework.

Even though the fix versus flex debate is not the focus of this paper, some remarks are in order. First of all, it should be noted that there is vast evidence that emerging market countries with a formally flexible exchange rate tend to intervene in the exchange rate market and greatly limit the fluctuations of their currencies (Calvo and Reinhart, 2000a 2000b, and Hausmann et al., 1999). In fact, even supporters of inflation targeting recognize that, because of high passthrough and the presence of liability dollarization, most emerging market countries need to use a mixture of instruments and smooth exchange rate movements (Mishkin, 2000, Velasco, 2000). Therefore, unlike developed countries, emerging market countries cannot make full use of their monetary independence and extract all the benefits of a flexible exchange rate. Hence, it may be the case that the credibility costs (often translated into higher interest rates) of a flexible exchange rate are not fully compensated by the advantages of a limited monetary autonomy.[24,25] It is exactly for this reason that Calvo (2000a) and Hausmann (1999) suggest that some emerging markets should abandon any ambition of adopting a flexible exchange rate and move to a hard peg. However, while it might be true that the *current* costs of flexibility could be higher than the *current* benefits of flexibility, given the high costs of exiting from a strong peg (Eichengreen and Masson, 1998), some emerging markets may be willing to pay these costs because they think that present value of *future* benefits of flexibility outweighs its costs. Therefore, the current

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[24] Fernández Arias and Talvi (2000) discuss the theoretical conditions under which deflation is preferable to devaluation. Panizza et al. (2000) evaluate the costs and benefits of dollarization for a small group of Central American Countries.
[25] Another concern is that a fixed exchange rate limits the ability of having a lender of last resort. However, Calvo (2000b) shows that this is not a real issue.

cost of a flexible exchange rate can be seen as the price of an option that gives the right of conducting a "developed country style" independent monetary policy once the country has redeemed from its "original sin" (Hausmann, 1999). While pricing this option is not an easy task, the decision on whether to move to a strong peg or maintain some degree of flexibility should explicitly include the present value of the benefits of future flexibility.

I conclude by observing that, so far, the discussion has completely neglected the issue of what is necessary to build successful monetary or fiscal institutions. In particular, is the design of an institution like inflation targeting sufficient to guarantee low and stable inflation in emerging markets? Or, as stated by Calvo (2000b), will its "constrained discretion" just end up being "old style discretion?" In turn, this begs the question: "from where do institutions come from?" Or, is the design of optimal institutions a sufficient condition for guaranteeing optimal monetary and fiscal outcomes? While the vast literature that studies the relationship between inflation and central bank independence (Alesina and Summers, 1993) and budget institutions and fiscal outcomes (Alesina et al., 1999) seems to provide a positive answer to this question, Posen (1993) is more pessimistic and claims that institutional commitment does not exist. In particular, he suggests that the ultimate cause for a given policy outcome (say, low inflation) is the society's support for this outcome and not the institutional setting. Of course, society will build institutions that are aimed at achieving its desired political outcomes, hence the observed correlation between institutions and economic outcomes, but according to Posen, this correlation is completely spurious. Lohmann (2000) proposes an alternative way to study the links between institutions and policy outcomes. Her analysis, based on audience cost theory, suggests that institutions need to be complex machines able to respond to different audiences. Therefore, even if one rejects Posen's point that institutions are completely dictated by society's preference, social structure and the presence of different audiences need to play a key role in the design of economic institutions. This discussion indicates that building monetary and fiscal institutions is an extremely complex exercise. In particular, one-size-fits-all institutions are not likely to be applicable to different emerging market countries (Rodrik, 2000) and no single currency or monetary regime is likely to be good for all countries (Frankel, 2000).

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