

The Case for Inflation Targeting in East Asian Countries

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1. Introduction

Over the past decade, a number of countries have adopted an inflation-targeting framework for the conduct of monetary policy. The majority of these have been developed countries, although Chile and Israel have also pursued some form of inflation targeting for the best part of ten years. In part spurred on by the successful economic performance of the countries that have adopted inflation targeting, and in part driven by concerns about their policy frameworks in the aftermath of the Asian crisis, a number of east Asian countries are seriously considering, or have recently adopted, inflation targeting.

This paper assesses whether inflation targeting is indeed a viable monetary policy strategy for an emerging market economy. Are there aspects of inflation targeting that do not translate well from a developed economy to an emerging market economy? Are these features critical for the successful practice of inflation targeting? Does the absence of these features imply that an alternative monetary policy framework would help deliver superior economic outcomes, or are the alternatives similarly compromised?

These questions have been addressed by Masson, Savastano and Sharma (1997). The general conclusion of their analysis was that most developing countries are not well placed to pursue an inflation-targeting framework. Their negative conclusion derived from their assessment that two crucial preconditions are not present in most developing countries: the ability to conduct an independent monetary policy and the subordination of an exchange rate objective to the inflation target. In addition, they highlighted technical problems, particularly difficulties in forecasting inflation, the volatility of the inflation process and a lack of knowledge about the transmission mechanism.

This paper reaches a more optimistic conclusion.² It argues that the problems identified by Masson *et al* apply to most of the alternative frameworks for monetary policy – not just inflation targeting. Furthermore, many of the technical problems

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1. This paper is based on an earlier paper, 'The Viability of Inflation Targeting for Emerging Market Economies', prepared for a conference on 'Financial Markets and Policies in East Asia', held at the Asia Pacific School of Economics and Management, Australian National University, 4–5 September 2000. I thank Ben McLean for research assistance and David Gruen for helpful comments. The views expressed are those of the author, and not necessarily those of the Reserve Bank of Australia.
 2. Mishkin (2000), Mishkin and Savastano (2000), Schaechter, Stone and Zelmer (2000) and Morandé and Schmidt-Hebbel (1999) reach similar positive conclusions.

they identified also applied to the developed economies when they first adopted inflation targeting. For most emerging market economies in the Asian region, inflation targeting is a viable policy framework should they want to pursue it, particularly given that these economies are starting from a position of already low inflation.

The next section describes the key components of an inflation-targeting framework. Section 3 discusses whether these key components are present in emerging market economies, and whether there are other features of emerging market economies that would hinder the practice of inflation targeting. Section 4 examines the role of the exchange rate in an inflation-targeting framework while Section 5 considers the viability of alternative monetary policy strategies. Section 6 concludes.

2. What Is Inflation Targeting?

The goal of monetary policy in many countries is to achieve a low inflation rate. Many countries announce a forecast for inflation over the coming year: in a recent survey by the Bank of England, 55 of 93 central banks characterised themselves as having an inflation target (Fry *et al* 1999). Despite this, only a subset of countries could be characterised as having a formal inflation target (the same survey identified only 16 central banks as inflation targeters).

This section discusses the defining features of an inflation-targeting regime: the primacy of the inflation objective, instrument independence, and transparency and accountability.³

2.1 The primacy of the inflation target

The central feature of an inflation-targeting framework is that the inflation target is the primary objective for monetary policy. This feature differentiates an inflation-targeting framework from one in which the central bank simply announces a forecast for inflation that it would like to achieve. In such situations, there is no obligation on the central bank to set policy to ensure that the inflation forecast is realised, particularly if to do so would compromise other macroeconomic objectives.

The primacy of the inflation target does not imply that other objectives, most notably employment and output objectives, are ignored.⁴ That is, inflation targeting is not ‘inflation only’ targeting. Most inflation-targeting countries have adopted ‘flexible’ inflation-targeting regimes, where output and employment growth play an important role in monetary policy decisions. Even in ‘strict’ inflation-targeting regimes, output considerations are still important because of the critical role output plays in determining future inflation: output should always feature in the reaction

3. The literature on the practice of inflation targeting has burgeoned in recent years. For a collection of papers discussing the early experience with inflation targeting, see Haldane (1995) and Leiderman and Svensson (1995). Lowe (1997) and Bernanke *et al* (1999) provide more recent commentaries. The websites of the central banks that have adopted inflation targets contain much material that discusses the technical aspects of inflation targeting.

4. These issues are discussed in more detail in Debelle (1999).

function of the central bank. The extent to which output and employment objectives are taken into account is influenced by the flexibility of the regime and will be reflected in the design features of the inflation-targeting framework. This is discussed in more detail in Section 3.

An inflation target need not preclude the simultaneous pursuit of an exchange rate objective, although to date, most inflation-targeting countries have floating exchange rates. At a basic level, the exchange rate can be an important determinant of the outlook for inflation and output, and to that extent, exchange rate changes are already adequately addressed in an inflation-targeting regime. But in a number of emerging market economies, exchange rate instability has a first-order impact, which requires that more weight be given to exchange rate considerations. This is discussed in more detail in Section 4.

Goal independence

In a number of inflation-targeting countries – for example, New Zealand, the United Kingdom and Korea – the adoption of inflation targeting has been associated with the introduction of new central banking legislation. In these cases, the new legislation has generally specified that price stability is the primary (and in some cases, sole) objective for monetary policy. In these circumstances, the central bank generally does *not* have goal independence.⁵ The legislation (and hence the legislature) specifies the goal(s) for the central bank, rather than the central bank nominating its own goals.

The operational definition of price stability has generally not been provided in the legislation. Instead, in many cases the inflation target has been adopted as the practical interpretation of price stability. The precise definition of the inflation target is agreed on jointly by the central bank and the government, or, as in the case of the United Kingdom, is specified unilaterally by the Chancellor, after consultation with the Bank of England. The target has often been specified in an accompanying document, such as the Policy Targets Agreement in New Zealand, or the Statement on the Conduct of Monetary Policy in Australia.⁶

Where the adoption of an inflation-targeting framework has not coincided with the passage of new legislation, the central banks have regarded the inflation target as the operational interpretation of the objectives in the existing legislation. In only a few cases, does the central bank have complete goal independence and unilaterally pursue an inflation target.

The goal dependence of the central bank helps to ensure that the government retains ownership of the ultimate goals of monetary policy, as is appropriate in a democratic society. Similarly, the joint determination of the inflation target bolsters the government's own commitment to the inflation target, thereby serving to increase the credibility of the regime.

5. Debelle and Fischer (1994) develop the concepts of goal and instrument independence.

6. These can be found at: <<http://www.rbnz.govt.nz/monpol/pta/index.html>> (New Zealand) and <<http://www.rba.gov.au/MonetaryPolicy/>> (Australia).

2.2 Instrument independence

While goal independence is generally absent in most inflation-targeting regimes, it is crucial that the central bank have instrument independence. To successfully pursue an inflation target, the central bank must have the freedom to adjust its instrument of monetary policy in the manner it feels necessary to achieve the inflation target. Instrument independence is desirable in any monetary policy regime, but it is essential in an inflation-targeting regime, given the greater degree of discretion allowed. To counterbalance this independence, the central bank should be accountable to the democratic process as discussed below.

The main constraint on the instrument independence of the central bank is the need to finance the government's deficit. Absence of fiscal dominance is a vital prerequisite for an inflation-targeting regime. Fiscal dominance can take the direct form of a requirement to fund the government's deficit on the central bank's balance sheet. The central bank needs to be freed from the obligation to act as the buyer of last resort of government paper, and to engage in other quasi-fiscal activities. Where there is a long history of fiscal dominance, it may be beneficial to legislate against it. For example, the *New Central Bank Act* in the Philippines in 1993 granted the central bank increased fiscal autonomy, and forbade it from engaging in development banking or financing.

Government endorsement of the inflation target should also reduce the pressure on the central bank to accommodate slippages in fiscal policy. Nevertheless, the government must be aware that it cannot fund its spending by money creation. A country which must rely on seigniorage revenue because it lacks any other source of budgetary funding is not suited to an inflation-targeting regime, as Masson *et al* (1997) argue.

Fiscal dominance can also take more subtle forms such as pressure on the central bank to lower interest rates to decrease the cost of servicing the public debt. The public accountability of the central bank can help to ameliorate this pressure by bringing any disputes between the central bank and the government into the open. To this end, there are a number of institutional changes which can be made to shore up this independence: the central bank governor and board can be appointed for terms longer than the political cycle, and politicians can be prohibited from serving on the central bank board. The governor can also be called to testify to a bipartisan review committee to explain the central bank's actions.

2.3 Accountability and transparency

A distinguishing feature of inflation-targeting regimes has been the high degree of transparency of the practising central banks. More recently, this aspect of transparency has become commonplace amongst many central banks, and should be a central feature of any monetary framework. The distinguishing feature of the transparency and accountability in an inflation-targeting framework, however, is that the central bank is accountable for the achievement of a well-defined numerical

target. All changes in the stance of monetary policy are motivated publicly with reference to the inflation target.

In practice, transparency has taken a number of forms. These have included the regular publication of the central bank's assessment of current and future economic conditions, and the announcement by the central bank of changes in the stance of monetary policy at the time they occur, generally accompanied by a press release and/or press conference to explain the reasons for the change. In a number of countries, the governor is required to testify before a parliamentary committee on a regular basis to explain the central bank's actions in achieving the inflation target.

One motivation for the increased transparency of inflation-targeting central banks has been to enhance public accountability, thereby serving as a counterbalance to the greater independence that has occurred over the past decade or so. Another major motivation for the increased transparency and accountability has been to act as a means of distinguishing the new inflation-targeting regime from the less successful, inflation-prone monetary regimes of the past. In both cases, the inflation target provides a clear benchmark with which to assess the performance of the central bank. In this sense, transparency is more useful in an inflation-targeting regime than in other regimes that do not provide such a definitive benchmark.

The increased transparency has been characterised as 'cheap talk of the weak' (Kuttner and Posen 1999). That is, the public utterances of central banks may only be a form of window-dressing to keep financial markets convinced that price stability is the goal of monetary policy, when instead the central bank may still be pursuing other objectives. While this is overstated, it reflects the inflation histories of the inflation-targeting countries. Given the lack of a track record, increased transparency can help to build reputation and credibility more quickly. Kuttner and Posen provide some evidence that the transparency of the inflation-targeting central banks has helped to build public trust in their actions.

Finally, the increased transparency serves as a useful means of communicating with the public. A greater public understanding of the inflation-targeting regime in particular, and the monetary policy process in general, is likely to contribute to the longevity of the regime. The clear specification of the inflation goal, and the actions taken to achieve the goal, help to provide a nominal anchor for wage- and price-setters. This is particularly important in economies which have a history of indexation, where the inflation target can serve as a forward-looking focal point for indexation thereby helping to reduce the costs of disinflation.

3. Issues for Emerging Market Economies

This section considers issues that might be regarded as obstacles to the implementation of inflation targeting in emerging market economies, and east Asian economies in particular. It highlights that, in many instances, these same obstacles were present in a number of the inflation-targeting countries at the time they commenced inflation targeting and hence should not be regarded as prohibitive barriers against the adoption of an inflation-targeting regime.

3.1 Objectives of monetary policy

As discussed in the previous section, successful inflation targeting requires that the inflation target be the primary objective for monetary policy and that the central bank have instrument independence. In many emerging market economies, monetary policy has traditionally had a multiplicity of objectives, including the exchange rate, full employment, the current account and financing the government's budget.

To establish a clear break from the past, a number of emerging market countries have found it beneficial to rewrite the central bank law to state that the primary goal of monetary policy is to achieve price stability. This has been the case, *inter alia*, in the Philippines which in 1993 enacted a new Central Bank Charter that established 'maintaining price stability conducive to the balanced and sustainable growth of the economy' as the primary objective of monetary policy. Similarly, the *Bank of Korea Act*, when revised in 1997, stipulated that the purpose of the Bank of Korea was 'to contribute to the sound development of the national economy by pursuing price stability' (Article 1).

Where there are other objectives specified in the central bank act, it may be useful to continually stress the primacy of the price stability objective in the early stages of the inflation-targeting regime. Once a track record has been established, there is likely to be scope to take greater consideration of other goals such as full employment, although, as noted above, output or employment goals are not necessarily inconsistent with the attainment of the inflation target in many economic conjunctures. The interaction of an exchange rate goal and an inflation target is discussed in the next section.

The goal of price stability stated in the central bank act rarely provides an operational definition. Instead, this is generally provided in the wording of the inflation target and, as discussed above, there are considerable benefits from either agreeing on the target jointly with the government or at least having the government publicly endorse the target. A sense of co-ownership of the inflation target by the government serves to increase the credibility of the regime, reduces the scope for fiscal dominance, and generally facilitates a consistent approach to macroeconomic policy-making. The *Bank of Korea Act* requires that the price stability target be set each year in consultation with the Government.

Many central banks also have the goal of preserving financial stability. In general, this should not conflict with the goal of price stability. But in the aftermath of the Asian crisis the banking systems in many countries in east Asia were particularly fragile. This raised the possibility that rises in interest rates to preserve price stability may have generated more financial distress. In an inflation-targeting framework, the central bank should be taking the deflationary forces emanating from financial distress into account in making its assessment about the appropriate policy stance. Consideration of this credit channel of monetary policy should ameliorate the need for tighter policy to counter inflation in these circumstances. Hence the possibility of conflict should not be overstated, although the difficulty of the appropriate decision for monetary policy in such circumstances will still remain.

3.2 Instruments of monetary policy

Many emerging market economies do not have the financial depth of developed countries. This can pose problems for the implementation of monetary policy changes and the transmission of those changes through to the rest of the economy.

The instrument(s) of monetary policy that the central bank has at its disposal is *not* critical to the success of an inflation-targeting regime. In every developed country that pursues an inflation target, an indirect instrument of monetary policy is used – generally the overnight interest rate on deposits of the banking system with the central bank. Despite this, inflation targeting is compatible with the use of monetary measures as the instrument of monetary policy. It is also compatible with the use of direct instruments such as credit controls. The important issue is that whatever the instrument of monetary policy, it is adjusted in order to achieve the inflation target.

A related problem is that in less-developed financial systems there may be greater uncertainty about the link between monetary policy actions and the final objective of the inflation target. While knowledge of the transmission mechanism of monetary policy is a key ingredient of an inflation-targeting regime, this should not be exaggerated. The adoption of inflation targeting in developed countries generally followed the failure of other monetary regimes: fixed exchange rates in the UK and Sweden, and monetary targeting in New Zealand, Canada and Australia. Hence past economic experience was not necessarily of great assistance in understanding the effects of monetary policy changes under the new regime. Moreover, in these countries, as is the case in nearly every developed country, there is still a great deal of uncertainty about the timing and potency of the transmission of monetary policy.

3.3 The inflation process

The inflation process in many emerging market economies has tended to be considerably more volatile than in developed countries (Table 1). This volatility can pose problems for the ability of the central bank to control the inflation process sufficiently to achieve its inflation target consistently.

There are a number of reasons for the greater volatility of consumer prices in emerging market economies. Food items, whose prices are subject to the vagaries of the weather, tend to have a larger weight in the consumer price basket of emerging market countries. For example, food accounts for just under 20 per cent of the consumption basket in Australia, while it accounts for around 50 per cent in the Philippines and over 40 per cent in Indonesia. The fifth column of the table shows that food prices tend to be more variable in emerging market countries and hence their higher weight in the CPIs of emerging markets economies will imply more variability in inflation.

Figure 1 illustrates the problem facing emerging market economies. It shows that food prices have contributed significantly to swings in CPI inflation in Korea and the Philippines, whereas they have had much less of an effect in Australia. The figure also shows that the swings in food prices tend to be relatively temporary and are often reversed over the course of the next year or so. Provided the inflation target is

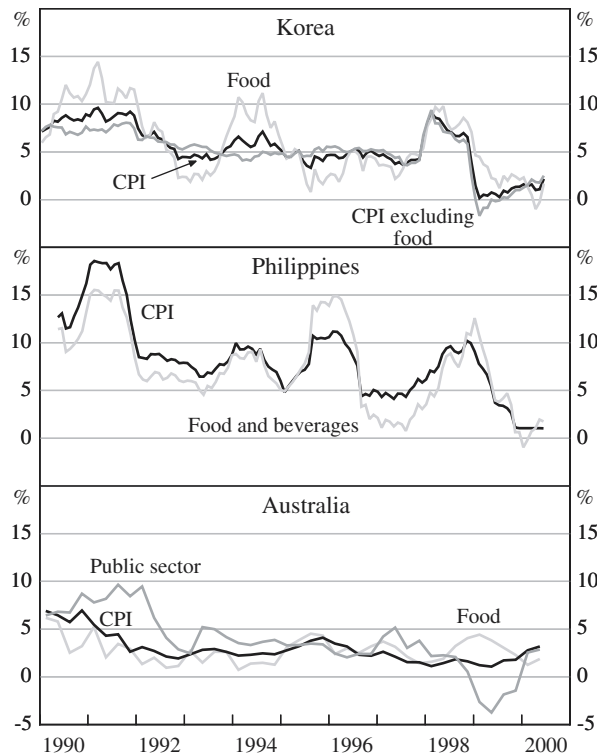
**Table 1: Inflation in Emerging Market and Developed Economies
1990s**

	CPI		Food ^(a)			Administered prices
	Mean	Variance	Share in CPI	Mean	Variance	Share in CPI
Emerging market economies						
Malaysia	3.7	0.9	35	5.1	4.1	11
Korea	5.6	5.4	30	6.2	11.3	–
Philippines	8.9	15.4	50	8.0	16.9	–
Indonesia ^(b)	23.5	446.9	42	32.0	958.1	–
Brazil	123.1	16 424.5	22	–	–	21
Czech Republic ^(c)	7.2	11.9	33	3.5	22.0	18
Mexico	18.3	70.4	12	14.8	153.8	18
Developed economies						
Australia	2.5	4.6	19	2.8	1.7	16
Canada	2.2	2.8	18	1.9	2.7	–
New Zealand	2.1	3.3	18	1.8	6.1	10
United Kingdom	3.8	4.2	13	2.7	6.6	15

(a) Includes beverages for Czech Republic, Mexico and the Philippines and tobacco for Czech Republic and Mexico
(b) January 1997–December 1999
(c) March 1996–December 1999

sufficiently forward-looking, such swings in prices should not engender a monetary policy response. In such circumstances, it is useful for credibility if the central bank explains that they expect the price movements to be temporary.

Another factor that affects the nature of the inflation process which can complicate the central bank's task is the number of prices regulated by the government. Table 1 shows that while this share is quite large in emerging market economies, in many cases it is not much greater than that in developed countries. However, in emerging market economies, administered prices tend to be more affected by the demands of the government's budget constraint. Furthermore, if the adoption of the inflation target coincides with a general program of economic reform, there may be large upward spikes in these prices as they are withdrawn from government control, given that many of them apply to essential goods and services whose prices have been artificially suppressed for social welfare purposes. The central bank may need to accommodate the initial price level impact of the removal of the government price controls but should aim to prevent the price rises becoming entrenched in higher ongoing inflation.

Figure 1: Inflation in Korea, the Philippines and Australia

If the inflation process is too volatile, there may be little point in the central bank explicitly pursuing an inflation target and enduring the loss of credibility as the target is continually missed. Rather, it may be preferable to implicitly target the inflation rate and only move to a more transparent form of inflation target if the inflation process becomes less volatile over time. Nevertheless, the design of the inflation-targeting regime can help to lessen the impact of volatile price movements by conditioning the response of inflation expectations to them.

3.4 Designing the inflation target

Output or employment goals as well as the volatility of the inflation process can be accommodated within the inflation-targeting framework through the appropriate design of the framework. The features of the framework that can help to accommodate these objectives include:

- the definition of the target inflation rate – that is, whether the targeted rate is the CPI inflation rate published by the statistical bureau or another underlying rate;
- the use of ‘caveats’ or exclusion clauses;

- whether the target is specified as a band or a point; and
- the target horizon.

The decision about each of these features of the targeting regime involves a trade-off between credibility and flexibility. The central bank may prefer to allow itself more flexibility in achieving the inflation target, but in doing so, it may undermine the credibility of the regime, particularly in its initial stages.

Targeting an underlying measure of inflation, rather than the published measure, provides the central bank with the flexibility to abstract from volatile movements in, for example, the prices of food or petrol. However, this may undermine the central bank's credibility, because the public is most familiar with the published measure of inflation. It may therefore be preferable for the inflation target to be defined in terms of the published measure of inflation to increase public acceptability, but for the central bank to focus on underlying measures in its own internal policy deliberations.

This approach has been taken in Brazil where it was considered that using a published, rather than an underlying, measure of inflation was necessary to enhance the credibility of the regime because in the past, price indexes had been manipulated for political purposes (Bogdanski, Tombini and Werlang 2000). In addition, the index that was chosen for the inflation target, the IPCA, was selected from amongst the wide range of consumer price indexes available in Brazil because of its broader geographical coverage and its greater familiarity to the public. Internally, however, the Banco Central uses a number of different measures of underlying inflation to gain a better understanding of the inflationary pressures in the Brazilian economy.

If an underlying rate is to be used as the target rate, it is beneficial for it to be calculated, using a known and accepted technique, by an agency other than the central bank – preferably the national statistical authority. If this is not possible, the central bank should make public the method of calculating the underlying measure, so that it can be independently verified.

As an alternative to using an underlying measure of inflation, 'caveats' or exclusion clauses can be used to specify events which the central bank wishes to abstract from in its conduct of monetary policy because they only have a temporary effect on inflation. These caveats should be specified *ex ante* rather than *ex post*. For example, in New Zealand these events are specified in the Policy Targets Agreement, which defines the inflation target, and include: large movements in commodity prices, changes in indirect taxes and natural disasters.⁷ The intent in such situations is to abstract from the immediate price-level effect of such events but not from any second-round inflationary pressures that may occur. As with the measure of underlying inflation, excessive use of exclusion clauses can diminish the public's trust in the inflation-targeting regime.

The choice between defining the inflation target as a band or point provides another mechanism to cope with the inherent volatility in inflation and to take

7. The latest copy can be found at <<http://www.rbnz.govt.nz/news/1999/0092613.html>>.

account of the variable and uncertain lags of monetary policy. A wider inflation target band also allows greater scope for output stabilisation.

The historical variability of inflation in emerging market economies illustrated in Table 1 would suggest that an inflation target band would need to be quite wide. If the band were wide enough to ensure that it was only infrequently breached, it may not be perceived to be credible. On the other hand, a narrower band may be perceived to be more credible initially, but if it were to be breached frequently because of temporary shocks to the price level, confidence in the inflation-targeting regime would soon be undermined.

The experience of inflation targeting to date suggests that the costs of small and temporary breaches of a target band are quite small, implying that a narrower band may be more suitable. In the case of any breach, the central bank must explain the factors that lie behind it, and whether the past policy actions are sufficient to ensure that inflation returns to the target within an appropriate horizon.

Similar concerns were expressed about this issue when inflation targets were being adopted in the developed countries (Stevens and Debelle 1995). The subsequent experience has seen only infrequent breaches of inflation target bands. In part, this is because inflation variability over the past decade has been noticeably lower than in the past. For example, in Australia, inflation variability has declined from around 2.5 per cent in the decade prior to the adoption of the inflation-targeting regime in 1993 to around 1.3 per cent subsequently, while in the UK, it has declined from around 1.5 to 0.4 per cent over a similar period.⁸ Whether this is an outcome of the shift to inflation targeting or whether it simply reflects a generally benign world economic environment is not clear.

Besides variability considerations, the choice between a band and a point should also focus on the use of the inflation target as an anchor for wage and price expectations. It may be beneficial to express the target as a point (perhaps with a tolerance interval) rather than a band to provide a better focal point. Otherwise, expectations may focus only on the upper end of the target band. This approach has been adopted in Brazil, where the target was initially announced as 8 per cent with a tolerance interval of 2 percentage points.

Finally, the longer the horizon of the inflation target, the longer the timeframe over which the central bank can return inflation to the target, and the greater scope for output stabilisation. A longer horizon also provides a mechanism to deal with temporary volatility in food prices. Again, if the horizon is too long, there may not be much confidence that the central bank is committed to returning inflation to target. In Korea, the price stability goal is defined as an inflation rate of 2¹/₂ per cent in the medium term. However, to provide a shorter-term focus and to contend with temporary price shocks, an annual inflation target is announced every December by the Bank of Korea following consultation with the government. For 2000, the target was 2.5±1 per cent, which was raised to 3±1 per cent for 2001.

8. Calculated as the standard deviation of year-ended CPI inflation (excluding interest) in Australia and RPI-X inflation in the UK.

It is important that decisions about the design of the inflation target are taken in advance of the events they are intended to contend with, and that the design features are changed as infrequently as possible. For example, a decision to target a medium-term measure of inflation should be taken before the familiar CPI measure is affected by a temporary price movement rather than during the period when it is diverging from the targeted rate.

Choices about these four aspects of the design of the inflation target all involve a trade-off between flexibility and credibility. If there is not a strong track record of inflation fighting, it may be beneficial for the central bank to make an upfront investment in credibility which can then permit it to be more flexible in the future. Against this, an over-zealous pursuit of an inflation target should be avoided, as it too can undermine public support for the regime.

3.5 Forecasting inflation

Monetary policy must be forward-looking in an inflation-targeting framework given the lags between changes in the instrument of monetary policy and inflation. Hence, forecasts of inflation play an important role in monetary policy decisions. Masson *et al* (1997) argue that the difficulty in forecasting inflation is one of the major obstacles to adopting an inflation-targeting regime in emerging market economies.

In many emerging market economies, the historical volatility of the inflation process and the large structural changes that have taken place in the economy make developing a model of the inflation process particularly difficult. In a number of cases, the sheer lack of historical data for the main macroeconomic variables further complicates the issue.

These analytical hurdles should not be overstated. Similar problems beset many inflation-targeting countries when they first adopted their regimes. For example, when inflation targets were first adopted in New Zealand at the end of the 1980s, the economy was undergoing extensive reform along many dimensions and the history of inflation in New Zealand to that point had been particularly volatile.

While it is clear that a well-developed analytical framework to forecast inflation would enhance the efficacy of monetary policy, it is not necessary. Most developed country inflation-targeters have progressively refined their inflation forecasting techniques as they have accumulated more experience, and some of the pitfalls encountered along the way can be avoided by emerging market countries. Nevertheless, a large amount of judgement is still involved in forecasting in the inflation-targeting countries. Thus, the benefits of inflation forecasting should not be oversold. There need not be a desire to have the state-of-the-art forecasting technology in place before an inflation-targeting regime is adopted.

In many countries, the current inflation rate is often a reasonable guide to future inflation and could usefully be employed as a starting point in developing a forecast in emerging market economies. This can be supplemented in an informal manner with information from other sources about near-term inflation pressures. Over time, this

information can be included more formally. The effect of past policy actions must be kept in mind, so that monetary policy is not continually adjusted until there is an obvious change in current inflation. Such an approach can lead to excess volatility in monetary policy.

The lack of an advanced forecasting framework does not appear to have been a major impediment to the outcomes in the inflation-targeting countries. Notwithstanding this, the adoption of an inflation target may require a reallocation of resources within the central bank, with more resources being devoted to monitoring and analysing developments in prices and the real economy (Schaechter *et al* 2000, ch 6). Resources may also need to be assigned to data collection. Over time, increased resources should be allocated to developing modelling and forecasting frameworks.

4. Inflation Targeting and the Exchange Rate

One important difference between east Asian countries and most inflation-targeting countries is their greater openness (Table 2). Consequently, movements in the exchange rate play a much more prominent role in economic management in the former. Not only do changes in the exchange rate act as a potent transmission channel for monetary policy, exchange rate volatility may also have first-order effects on the traded sector of the economy. What role should the exchange rate have in an inflation-targeting regime in a very open economy?

Table 2: Openness
Per cent of nominal GDP, 2000

	Exports	Imports
Australia	22	23
Canada	46	41
United Kingdom	27	29
United States	11	15
Brazil	11	12
Chile	32	31
Indonesia	39	31
Israel	40	47
Korea	45	42
Malaysia	126	106
Singapore	180	161
Thailand	66	58

Source: CEIC database; IMF *International Financial Statistics*

It is useful to consider this question in terms of the standard objective function for monetary policy used in the inflation-targeting literature. The objective function normally comprises squared deviations of inflation from its target level (π^*) and output from potential (y^*). The exchange rate appears in this formulation of the objective function only indirectly through its effect on output and inflation. The central bank will therefore respond to exchange rate changes because of their large impact on output and inflation, and the response will be greater, the more open the economy. To the extent that a more volatile exchange rate generates more variability in traded goods prices and hence inflation, this can be accommodated in the design of the inflation target as discussed in Section 3.4.

In very open economies, the standard form of the objective function may not adequately capture the full effect of exchange rate changes on output: excessive volatility in the exchange rate may be detrimental to trade and growth. Consequently, it may be appropriate to extend the objective function to explicitly take account of the exchange rate:

$$L_t = E_t \sum_{s=t}^{\infty} \delta^{s-t} \left[(1-\lambda)(\pi_s - \pi^*)^2 + \lambda(y_s - y_s^*)^2 + \kappa(e_s - e_s^*)^2 \right]$$

This form of the objective function highlights the possibility of a trade-off between exchange rate variability and inflation variability, alluded to by Fischer (2001), which is similar to the oft-analysed trade-off between output variability and inflation variability that arises from the standard version of the objective function. The trade-off can be illustrated by considering an economy where the exchange rate channel of monetary policy is the most effective in the short term because the pass-through of exchange rate changes to consumer prices is rapid. In a situation where inflation was expected to increase temporarily, interest rates could be raised to engender an exchange rate appreciation and a fall in tradable goods prices. Once the inflationary pressure had dissipated, interest rates could be lowered again and the exchange rate allowed to depreciate. In these circumstances, inflation variability has been reduced but at the expense of increased volatility in the exchange rate.

The question that is posed by this extended objective function is, what are the relative benefits of a more flexible exchange rate versus a more stable exchange rate? Frankel (1999) summarises the benefits of a more flexible exchange rate regime as the ability to pursue an independent monetary policy, while he characterises the benefits of a fixed regime as reducing transactions costs and exchange rate risk for the traded sector, and providing a credible nominal anchor. The latter concern is partly addressed by the role of the inflation target itself as a nominal anchor, although fixing the exchange rate may deliver more credibility upfront. A cost of flexibility not raised by Frankel is the possibility of instrument instability if monetary policy is continually adjusted to counter sharp swings in the exchange rate. Eichengreen and Hausmann (1999) also identify the problem caused by sharp movements in exchange rates in a country with a large stock of foreign-currency-denominated

debt. In the end, the relative benefits and costs of exchange rate flexibility is to a large extent an empirical issue that will vary with the characteristics of different economies. The title of Frankel's 1999 paper succinctly summarises the issue: 'No single currency regime is right for all countries or at all times'.

An intermediate solution to this trade-off is the combination of an inflation target and an exchange rate band along the lines proposed by Williamson (2000). One advantage of such a band, highlighted by Williamson, is that it would provide an anchor for expectations about the exchange rate similar to the way in which the inflation target anchors the expectations of wage- and price-setters.

An exchange rate band can then be regarded as a supplement to the inflation target that has the benefit of contributing to exchange rate stability. In a stable economic environment, the monetary policy decision would not be constrained by the exchange rate band and can be directed solely at the inflation target. The difficulty arises in the event of a conflict between the exchange rate band and the inflation target. This was the fundamental incompatibility highlighted by Masson *et al* (1997). The experiences of Chile and Israel show that exchange rate objectives can be accommodated within an inflation target but also highlight the problems that can arise.

4.1 Inflation targets and exchange rate goals: the experience of Chile and Israel

Chile and Israel pursued exchange rate objectives concurrently with an inflation target for much of the 1990s.⁹ Both economies are relatively open to trade, although not to the extent of some east Asian economies. Figure 2 shows the paths of inflation and the exchange rate, and their respective target bands over the 1990s.

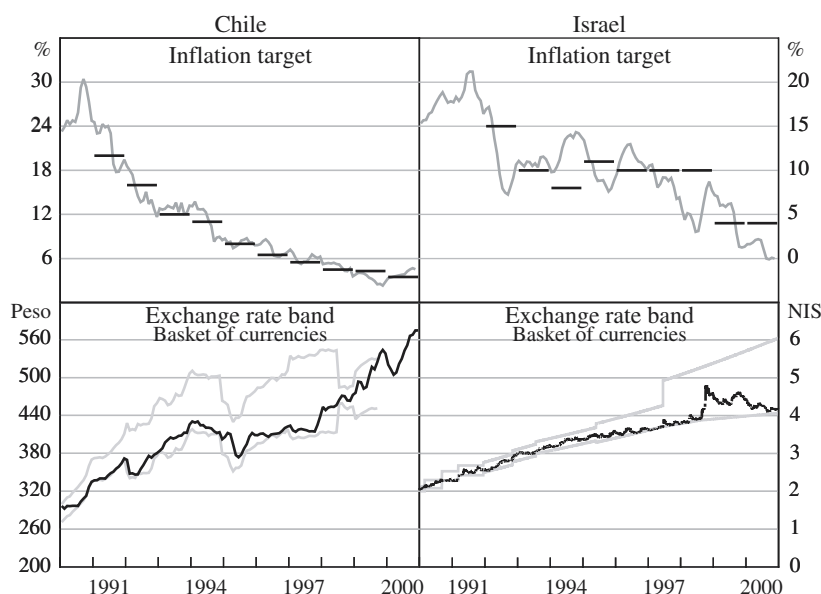
In Chile, a crawling peg had been in place since 1984. When the inflation target was first introduced, soon after the new legislation granting increased independence to the Bank of Chile in 1989, the exchange rate band was flexible with a band of around ± 10 per cent. The exchange rate band was primarily used to achieve a desired outcome for the current account deficit and hence the rate of crawl was set to achieve a real exchange rate goal.¹⁰ It was supported by intervention, controls on capital inflows, and, to the extent that it did not conflict with the inflation target, by monetary policy. Morandé (2000, p 155) notes 'whenever there was a clear conflict ... the Central Bank chose to maintain the inflation target and proceeded to modify the exchange rate band'. From 1990, the emphasis on the inflation target as the primary objective of monetary policy was gradually increased until finally, the exchange rate band was abandoned completely in 1999.

In Israel, a crawling peg had been adopted as the exit strategy from the successful exchange rate based stabilisation in the second half of the 1980s. The genesis of the

9. Landerretche, Morandé and Schmidt-Hebbel (1999) discuss the Chilean experience, Leiderman and Bufman (2000), the Israeli experience.

10. Mishkin and Savastano (2000) argue that monetary policy should not be used to address external competitiveness issues.

Figure 2: Inflation and the Exchange Rate in Chile and Israel



inflation target was, in part, the need to have a forecast for Israeli inflation. The forecast was then used to set the rate of crawl of the exchange rate in a forward-looking manner, to achieve a goal for the real exchange rate. The exchange rate band was progressively widened as conflict arose between the inflation target and the exchange rate band. Leiderman and Bufman (2000, p 76) highlight the problem:

The level of the interest rate that was required to ensure the inflation target was met [was higher] than the level of the interest rate that would have resulted in no pressures on the exchange rate band limits. Since the exchange rate band limits became a binding constraint, a large degree of sterilised intervention of capital inflows was required – sterilization that carried with it a sizable quasi-fiscal cost – and monetary policy could not fully affect inflation developments through the very important exchange-rate channel of monetary transmission.

In both Chile and Israel, the exchange rate had served a useful role as a nominal anchor in stabilising from high rates of inflation. The inflation target gradually took over that role as lower rates of inflation were maintained. While there was some benefit in maintaining an exchange rate band to provide ‘guidance about the desirable trend of the real exchange rate and to reduce excessive exchange rate volatility’ (Morandé and Schmidt-Hebbel 1999), whenever a conflict arose between the inflation target and the exchange target, monetary policy decisions were determined by the need to achieve the inflation target, and the exchange rate target was modified.

This experience shows that the presence of an exchange rate objective is not incompatible with an inflation target most of the time. However, in the event of a conflict, both Chile and Israel found it necessary to have a clear lexicographic ordering between the inflation target and the exchange rate, which resulted in monetary policy being directed towards maintaining the inflation target and the exchange rate goal being adjusted. The inflation target provided the framework with which to consider whether and how it was appropriate to modify the exchange rate target.

4.2 Capital flows

Large and volatile capital flows pose a significant problem for east Asian economies.¹¹ Through much of the 1990s, the capital flows into the region were large relative to the size of the economies and the financial systems. These flows create difficulties for an exchange rate goal, even if it is simply to maintain stability rather than to target any particular level of the exchange rate. In addition, the presence of volatile capital flows can create a conflict with an inflation target.

There are some principles which can provide some guidance on the appropriate response to capital flows. If capital inflows are temporary, sterilised intervention to maintain exchange rate stability should not be inconsistent with the inflation target. If the capital inflows are more sustained, attempting to maintain exchange rate stability will either be too costly (if the inflows are sterilised) or would potentially lead to inflation (if they are not).

If the capital inflows are more sustained and reflect improved fundamentals, an appreciation of the real exchange rate is likely to be required. It is generally preferable to achieve this real appreciation through an appreciation of the nominal exchange rate rather than through higher domestic inflation. Allowing the nominal exchange rate to appreciate contributes to lower domestic inflation and avoids the need for a costly disinflation at a later date. Resisting the nominal appreciation blocks an important channel of monetary transmission and contributes to imbalances which can create greater instability further down the track.

While these principles are relatively straightforward in theory, in practice it is often difficult to determine whether the capital inflows do indeed reflect improved domestic fundamentals, and hence whether an appreciation is appropriate. A nominal appreciation could potentially lead to the exchange rate overshooting, even if the initial part of the rise was based on fundamentals, with adverse consequences for the current account balance and the tradable goods sector. If the capital flows are volatile, then a decision to allow the exchange rate to fluctuate in response forces all the burden of adjustment to fall on the traded sector of the economy.

Large and volatile capital flows are difficult to deal with in any monetary framework. As the experiences of Chile and Israel demonstrate, the inflation target can help by providing a consistent framework to weigh up the inflationary

11. See Haque, Mathieson and Sharma (1996) for a discussion of these issues.

consequences of capital flows against the possible costs of increased exchange rate instability. In doing so, it helps the central bank to ‘ask the right questions’ about the forces driving the movements in the exchange rate.

5. What are the Alternatives in East Asia?

An inflation-targeting regime presents a number of analytical hurdles to an emerging market economy, and hence it might be regarded as premature to adopt such a regime until these analytical hurdles are overcome. If that is the case, what are the alternative monetary policy regimes that could be pursued?¹² This section considers four possibilities – monetary targeting, nominal income targeting, a fixed exchange rate, and a regime of ‘unconstrained discretion’ – and compares them to inflation targeting.

5.1 Monetary targeting

A monetary-targeting regime has the potential advantage of relative controllability. With a floating exchange rate and in the absence of fiscal dominance, the central bank can be reasonably confident of its ability to achieve a narrow monetary target. A strict approach to monetary targeting also limits the central bank’s discretion in its approach to monetary policy. While inflation targeting has been termed ‘constrained discretion’,¹³ the constraints are usually much tighter in a monetary-targeting regime. It is easier and more timely to determine whether the central bank is meeting its monetary targets than it is to determine whether it is achieving its inflation target, given the long lags of monetary policy and the influence of exogenous shocks on the inflation rate in the interim.

However, this begs the question of what is the ultimate goal of the monetary targeting. Little is achieved if the central bank successfully meets its monetary target but inflation and output growth are not close to their desired rates. If the ultimate objective of the monetary target is a particular inflation rate, then an intermediate monetary target is consistent with inflation targeting. It may be beneficial to move towards a more explicit inflation-targeting regime and emphasise the final inflation objective, rather than the intermediate monetary target, to better anchor pricing behaviour.

Inflation targeting also has the advantage of making use of all the available economic information in determining the outlook for inflation, whereas monetary targeting focuses narrowly on the information in the money demand function. As the east Asian economies have undergone financial deregulation, the information provided by money demand has been distorted (Dekle and Pradhan 1997). While this also poses problems for an inflation target, it is not as critical because the inflation target makes use of a much wider set of information.

12. Mishkin and Savastano (2000) provide an extensive examination of this question and support their answer with examples from Latin America.

13. Bernanke and Mishkin (1997).

The choice between these two approaches boils down to one between a regime where the discretion of the central bank is limited, but the effects of its policy on the ultimate goal are less clear (monetary targeting), and one where there is a much greater opportunity for discretion, but policy actions are aimed directly at the ultimate objective of policy (inflation targeting).

5.2 Nominal income target

Another alternative policy regime is nominal income targeting,¹⁴ which shares many similarities with a flexible inflation-targeting regime. A nominal income target explicitly takes into account developments in both prices and output, but is not as concerned about the decomposition of the nominal income growth into inflation and output growth. For example, under a flexible inflation target, in the event of a price shock, some of the adjustment may be taken in the form of temporarily higher inflation while some of the adjustment is taken in the form of lower growth, but the primary focus is on returning inflation to the target.

The main advantage of a nominal income target is that it does not rely on knowledge of the output gap. The size (and sign) of the output gap is an important element in an inflation target, but historically it has proven difficult for central banks to measure it. Against this, a major difficulty in a nominal-income-targeting regime arises from the fact that monetary policy affects real output and inflation with different lags. Consequently a policy response aimed at nominal income may generate instability through time. A further disadvantage may arise from the problems of communicating a nominal income target to the public. An inflation target has the benefit of acting as a transparent anchor for inflation expectations that may be lost with a nominal income target.

5.3 Nominal exchange rate target

A fixed exchange rate target or a currency board place even greater constraints on the discretion of the central bank than monetary targeting. The advantages and disadvantages of such regimes are discussed extensively elsewhere and some of the benefits and costs of exchange rate flexibility have been raised in Section 4.¹⁵ A rigidly fixed exchange rate regime and an inflation target should be regarded as alternative strategies to achieve price stability. The trade-off is between the flexibility allowed with a floating exchange rate and the credibility gains of a rigid anchor (particularly with a country with a poor monetary policy history). As Frankel (1999) argues, the choice of exchange rate regime depends on the country and on the circumstances.

14. Hall and Mankiw (1994) advocate such a regime. Bean (1983), McCallum (1997) and Rudebusch (2000) discuss its relative merits. McKibbin and Singh (2001) compare a nominal income target and a policy rule that responds only to inflation (which they mislabel as inflation targeting) in a model of the Indian economy.

15. Recent papers examining the choice of exchange rate regime include Eichengreen and Hausmann (1999), Frankel (1999), Glick (2000), Fischer (2001) and Dornbusch (2001).

5.4 Unconstrained discretion

Finally, the central bank can set monetary policy taking into account all the information available, as with inflation targeting, but without a clear specification of the ultimate goals of policy. Objectives for policy such as price stability and full employment may be specified, but with no clear articulation of what they mean operationally and how conflicts between objectives are to be resolved. Such a strategy, which to some extent describes the approach taken by the US Federal Reserve, is possible when the central bank has a proven track record but is less suitable for central banks which do not have such a track record.

The principal disadvantage of this approach is that it lacks the structure that an inflation target provides to the monetary policy decision. This organising structure is useful both for the internal policy discussion and also for explaining the reasons underpinning monetary policy decisions to the general public. Another disadvantage of unconstrained discretion is that it is easier for the central bank's independence to be compromised. The priority of the goals can be more easily influenced from outside the central bank, without that being clear to the general public. Continual changes in the priorities of the central bank are also likely to undermine the public's confidence in the central bank.

6. Conclusion

Inflation targeting presents a number of hurdles for east Asian economies. However, these hurdles are, in many cases, not much larger than those that confronted the inflation-targeting countries when they adopted their regimes in the early 1990s. The experiences of Chile, Israel and, more recently, Brazil provide examples of how the hurdles can be overcome.

Nevertheless, there are some necessary conditions that should be met before an inflation-targeting regime is adopted. Most importantly, the central bank should have the independence to pursue the inflation target and should not be constrained by the strictures of fiscal dominance. Secondly, there should be a commitment to the inflation target that extends beyond the walls of the central bank. Without the backing of the government the credibility of the regime will be weakened and the ability of the central bank to achieve the inflation target will be compromised.

There is greater scope for political interference in discretionary regimes, such as an inflation target, than in rule-based regimes, such as fixed exchange rates. Thus, it is essential that a supportive institutional structure be put in place. Providing legislative backing for the institutions is a necessary first step but will not ensure credibility overnight. Doubts about the credibility of institutions can only be assuaged by the establishment of a track record of sound performance, which requires that a start be made at some time.

The absence of a finely honed forecasting and analytical framework should not be seen as a prohibitive barrier. Learning from the experience gained from over a decade of inflation targeting allows a central bank adopting inflation targeting today

to be better placed than the pioneers of inflation targeting ten years ago. Nevertheless, the adoption of an inflation-targeting regime is not an instant cure for inflation problems.

The current conjuncture seems an opportune time to adopt inflation targeting in a number of east Asian countries. Inflation is already low, the disinflation costs are already sunk. While these countries have had some success in maintaining low inflation in the past without a well-defined monetary policy framework, inflation targeting would appear to be a viable monetary framework with which to lock-in a low-inflation environment for the future.

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