Inflation Targeting in Asia

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Chapter 1. Executive Summary

Inflation targeting has become a popular monetary policy framework for the pursuit of price stability among many countries, advanced and developing, since the 1990s (see Table 1.1). Many central banks have explicitly adopted inflation targeting, while others implicitly follow the practice without declaring so. Price stability has, of course, been an important objective for central banks long before the recent enthusiasm for inflation targeting. But inflation targeting goes beyond the declaration of price stability as an objective and is more than a policy rule. It is a framework for central bank accountability and communication. By explicitly defining a numerical target and placing emphasis on the inflation forecast, the central bank is able to justify its actions to the general public. The enhanced transparency and accountability that this entails provides central banks with the flexibility to respond to economic shocks. And it clarifies the outlook for inflation, enabling consumers and businesses to reach well-informed, rational decisions about whether to save or borrow, to invest or consume, and what and when to produce.

There are several reasons for the current popularity of inflation targeting. First, some countries with a history of high inflation have adopted inflation targets as a means of demonstrating a strong commitment to a low inflation policy. If monetary policy is credible and inflation expectations adjust to the target, then the inflation rate can be lowered without incurring excessive adjustment or output costs. Second, an inflation target is a performance criterion to which central banks can be held accountable. Since the objective of monetary policy is presented in numerical terms, policy is more transparent to the public. Moreover, some central banks have further enhanced accountability by inflation targeting, which has led to further strengthening their independence Finally, inflation targets offer an alternative nominal anchor for countries forced to abandon fixed exchange rate

regimes. The International Monetary Fund (IMF) has recommended the adoption of inflation targeting and central bank independence to a number of countries in Asia following the financial crisis in 1997-98.

This occasional paper examines the practice and promise of inflation targeting in Asia. It considers the challenge of implementing such a framework in emerging economies that are small and open to capital movements. Of particular concern is the relationship between the exchange rate regime and the inflation target, since exchange rate movements exacerbate currency mismatches in national balance sheets, pass-through to domestic prices and costs, and impact on competitiveness. These have led a number of countries in the region to adopt managed floating exchange rate regimes following the Asian crisis. Rapid structural changes also mean that defining price stability and forecasting inflation is not straightforward. The deflationary experience in Japan and the debate over the appropriate monetary framework in that country adds a further dimension to the design and implementation of an inflation targeting regime. The paper analyses these issues before proceeding to detailed case studies of the experiences with inflation targeting in the region. As such, it provides the first comprehensive survey and assessment of inflation targeting in Asia.

The paper suggests that inflation targeting may be a suitable framework for emerging market countries, particularly those with central banks that are legally independent from the government. But the central rate of the target should be higher and the width of the band should be wider than for advanced economies, reflecting more pronounced productivity differentials and measurement biases. And, in view of the possible risks of deflation, the lower bound of the inflation target band should be set at a level sufficiently above zero.

The paper also argues that a narrow focus on price stability, which ignores movements in the exchange rate, should be avoided. Countries in the region may benefit from pursuing both an inflation target and a managed exchange rate regime such as a basket band system. In a basket band system, the central rate is determined by the basket value of the currencies of a country's trading partners, and the rate is allowed to crawl according to changes in the basket value. The greater predictability of exchange rate movements facilitates investment decisions and mitigates against sharp changes in export competitiveness. Moreover, since the policy directions of monetary policy from both currency and inflation targets usually coincide, the presence of bands around both the inflation and exchange rate targets will likely provide room for policy maneuver. But care needs to be exercised in maintaining the compatibility of the exchange rate band and the inflation target, particularly when there are large capital movements. A sound macro-economic policy framework and regional policy co-ordination are therefore critical ingredients for the sustainability of such a regime.

The experience of inflation targeting in Korea, Thailand, Indonesia, and the Philippines, has been a positive one. Although the precise detail of the framework varies between countries, inflation targets have contributed to price stability and policy credibility. But there is still scope for improvement, and Asian central banks can learn much from each other given the common challenges that they each face in implementing their inflation targeting frameworks. To this end, the occasional paper makes a number of recommendations specific to each country. These include suggestions on the width and horizon of the inflation target, the level of the target ceiling, and observations on institutional independence. The paper cautions against viewing inflation targeting as a panacea and notes that monetary policy should be flexible enough to cope with financial instability, especially given the scale of non-performing loans in these countries.

The rest of this occasional paper is organized as follows. Chapter 2 reviews the theory and practice of inflation targeting, highlighting the challenges posed by such a framework for emerging market economies. It considers how advanced countries have dealt with central bank independence, the level and horizon of the target, asset prices, and the effects of exchange rate pass-through. These issues are also relevant to emerging market economies which, in addition, must contend with large foreign currency liabilities, less stable economic relationships, and under-developed financial markets. Chapter 3 explores the contentious relationship between the exchange rate regime and inflation targets. The merits of different exchange rate regimes are examined, and the analysis highlights the relevance of an implicit basket band exchange rate regime for emerging market countries seeking to target inflation. Detailed case studies of the Asian experience with inflation targets are presented in Chapter 4. These provide fertile ground from which to assess the benefits and shortcomings of inflation targeting. Chapter 5 examines the monetary policy lessons from Japan's experience with deflation. It stresses that Asian policymakers should be cognizant of the debate over the monetary framework in Japan and explicitly take account of deflation risks in designing an inflation target regime. A final chapter concludes.

Table 1.1 Countries Implementing Inflation Targeting

	introduced in	Current targets
OECD Countries		
New Zealand	1990	1-3%
Canada	1991	2 plus/minus 1%
United Kingdom	1992	2.5 plus/minus 1%
Sweden	1993	2 plus/minus 1%
Australia	1994	2-3%
Czech Republic	1998	2-4%
Poland	1998	Less than 4%
Korea	1998	3 plus/minus 1%
Mexico	1999	3%
Switzerland	2000	Less than 2%
Norway	2001	2.5%
Iceland	2001	2.5 plus/minus 1.5%
Hungary	2002	3.5 plus/minus 1%
Non-OECD Countries*		
Chile	1991	3 plus/minus 1%
Israel	1992	1-3%
Brazil	1999	2.5 plus/minus 1%
Indonesia	2000	9 plus/minus 1%
Thailand	2000	0-3.5%
South Africa	2000	3-6%
Philippines	2002	4.5-5.5%

Note: The list includes most non-OECD inflation targeters though it may not cover the all.

Chapter 2. The Theory and Practice of Inflation Targeting and Challenges for Emerging Market Economies

2.1 Theory

Inflation targeting is a framework for conducting monetary policy which makes numerically explicit the goal of policy. It aims to enhance the effectiveness of monetary policy through commitment by the monetary authorities to a specific target or range for the inflation rate, and by increasing the transparency of policy decisions and the way in which these are communicated to the public. In general, governments pursue a number of policy objectives, such as price stability, low unemployment, high growth, a more even distribution of income, balanced budgets and a sustainable balance of payments. The task of price stability is usually assigned to the central banks. Specifying a clear, unambiguous target for inflation helps to clarify its role and responsibility, thereby reducing the problem of conflicting goals of monetary policy.

The literature on inflation targeting is vast, and tends to be focussed on the experience of industrialised economies. Bernanke and Mishkin (1997), Mishkin and Posen (1997), and Bernanke, Laubach, Mishkin, and Posen (1999) provide comprehensive overviews of some of the key issues involved in inflation targeting.

Mishkin (2000) argues that the adoption of inflation targeting is as important a consideration for emerging market economies as it is for advanced economies, and perhaps more challenging in terms of the complex lags between changes in the settings of the monetary policy instruments and economic outcomes. Mishkin and Savastano (2001) provide some useful perspectives on inflation targeting in Latin America.

Despite its increased popularity, assessing the effectiveness of inflation targeting is not easy. Some authors argue that this has helped to achieve a decline in inflation rates and has eliminated the usual costs associated with producing an unexpected decline in the inflation rate (Bernanke et al., 1999). Others suggest that this decline would have occurred anyway and that it is not clearly connected to the success of inflation targeting (Ball and Sheridan 2003).

2.1.1 Policy assignment

It is well-understood that a central bank with a single policy instrument cannot pursue multiple objectives. For example, an emphasis on maximising employment growth as well as price stability poses serious conflicts. At least two instruments are required to pursue two policy objectives. The job of the central bank - with control over the monetary base - is best directed to the pursuance of price stability. Although price stability has always been an important objective for central banks, inflation targeting goes further by specifying an explicit numerical target for inflation.

There are additional reasons for why monetary policy should be assigned to pursue price stability, while other instruments should be assigned to keep employment high and output at the level of potential. Monetary policy can affect the price level, while the price level cannot change the level of potential output. Therefore, what monetary policy can do in the long run is to achieve price stability, and not full employment or economic growth targeting.

This policy assignment does not mean that inflation is the only indicator monitored by the central bank. Even if the central bank minimizes a loss function

defined by a weighted average of GDP volatility and inflation volatility, an inflation targeting policy can be derived as an optimal policy rule (see for example Svensson, 1999).

2.1.2 Final versus intermediate targets

In past decades, price stability was often pursued by the explicit or implicit targeting of short-term interest rates or monetary aggregates (often the M2 growth rate) - so-called intermediate targets. Targeting monetary aggregates was particularly popular among central banks during the 1980s. The argument was that the lag between a policy action and its impact on the economy made it necessary to act in a preemptive way. An intermediate target that helped to predict price movements and, at the same time, could be controlled by the monetary authority was therefore useful.

The problem with intermediate targets is that the link between the intermediate and the final target was not sufficiently stable to provide reliable basis for monetary policy actions. In particular, the nature of economic shocks affected a relationship - financial liberalisation is a good example. The inflation targeting literature argues that it is better to use as full an information set - which may include monetary aggregates - as possible to predict prices - rather than to restrict this to a particular subset of economic indicators. Because of lags between changes in monetary policy and their effect on the economy, it is necessary to target future inflation, rather than current inflation which depends on past policy actions.

2.1.3 Central bank independence and accountability

Adopting inflation targeting strengthens the accountability of central banks because the objective of policy is presented in numerical terms and is, therefore, much clearer to the public. In addition, the independence of the central bank is enhanced under an inflation targeting framework, since the central bank bears responsibility for the inflation target and has a free hand in deciding how best to achieve it.

There is some debate about the degree to which the central bank and fiscal authority should coordinate in order to achieve their respective goals of price stability and output stability. On the one hand, if the fiscal authority were to unilaterally pursue a temporary stimulus with deficit financing - perhaps motivated by an imminent election - the central bank may be put into a difficult position. In order to keep inflation on target, the central bank would need to counter the fiscal stimulus with monetary tightening. If successful, this would likely result in higher interest rates with no output gains. The effect of higher interest rates would, in turn, tend to reduce private sector investment and increase capital inflows with a negative effect on the country's current account. On the other, if the central bank seeks to accommodate the fiscal stimulus, even partially, by allowing inflation to rise above target in the short run, it may cause more serious problems in the longer run. The risk with this strategy is that the government may be encouraged to undertake further fiscal expansions in the future in the knowledge that it can achieve - albeit temporary - gains in output. Thus, some argue that it is preferable if the central bank does not try to accommodate changes in fiscal policy in the first place, which is easier if the central bank is given a clear and unambiguous policy target, and a high degree of independence from the government.

2.1.4 Rules versus discretion

In pursuing price stability, there is potentially an important trade-off for central banks to consider between the credibility of its commitment to this goal, and flexibility in responding to economic shocks. This is the central idea behind the so-called

rules versus discretion debate (see for example Kydland and Prescott (1977), and Rogoff (1995)). Briefly, the more credible the central bank's commitment to low inflation, the lower will be the output costs of reducing inflation to some target level, and keeping it there. In theory, it would be easy for the central bank to have a high degree of credibility by announcing a policy rule specifying exactly how it will respond in terms of policy settings to a deviation of inflation from target, and then following this strictly. A Taylor rule might be one example, which can be interpreted as a rule specifying the change in interest rates required to bring inflation back to target and output back to its potential rate following an economic shock. However, in the face of certain type of shocks, such as supply disturbances, the central bank may wish to respond in a more discretionary way. Bringing inflation back to target gradually helps to minimise the variance of both output and inflation.

It is not clear whether inflation targeting ought to be viewed as a strict policy rule. Many of its advocates argue that it is not so much a policy rule, as a framework for monetary policy (see for example, Bernanke et al., 1999, pp. 21-25.) Some have referred to inflation targeting as "constrained discretion" (King, 1998). In practice, inflation-targeting central banks look at a myriad of different economic indicators when setting monetary policy, with a focus on those that are believed to contain information about future inflation. In addition, great emphasis is placed upon the notion that the response to movements in individual indicators, which may include the current rate of inflation, depends upon the policy-maker's judgement about the type of shocks hitting the economy. In this sense, it is hard to argue that inflation targeting is a mechanistic rule-based approach.

2.1.5   Inflation expectations

One of the aims of announcing and implementing an inflation target is to attempt to anchor expectations about inflation around the target. The importance of this is shown by the following example. Suppose the economy is hit by an adverse supply shock, such as an oil price increase, which will tend to reduce output and employment and cause an increase in the price level. An appropriate adjustment to this kind of shock is to allow the price level to rise, thereby reducing real wages, which will help to limit the reduction in employment and output arising from the shock. However, the risk is that workers resist the required adjustment by demanding higher wages in response to the rise in prices. If these demands are accommodated by the monetary authorities, this will, in turn, put further upward pressure on prices as firms attempt to restore their profit margins, potentially leading to an inflationary spiral. A key to avoiding a spiral is to convince workers that the rise in the inflation rate is a one-off event, as the price level rises to its new higher level. In an inflation targeting framework, a key point is that the first-round or price level effects of a supply shock will tend to be accommodated, but the second-round effects on the inflation rate will not. So long as workers are aware of this policy response, and find it credible, they are more likely to curtail wage demands in response to a supply shock and allow the necessary downward adjustment in their real wages.

2.2   Experience of advanced countries: New Zealand, United Kingdom, Canada, and Sweden

New Zealand was the first country to adopt inflation targeting as its monetary policy framework, as a response to the experience of high inflation during the 1980s. The Reserve Bank of New Zealand (RBNZ) was assigned the task of inflation targeting with independent monetary policy instruments under the central banking law of 1989, and this framework was formally implemented in 1990. In practice, the Governor and Treasury Minister have to agree on the objectives of monetary policy,

including the inflation target, which is formalised in the Policy Target Agreement (PTA). Currently, the inflation target is between 1 and 3 per cent of the headline CPI inflation rate. If unusual events occur - such as a sharp increase in oil price - causing the inflation rate to deviate from its target level, then the central bank will not be held responsible.

A unique feature of the New Zealand framework is that important policy decisions, including changes in interest rates are made solely by the Governor rather than a board or committee. In practice, the Governor consults with the Deputy Governor and staff. The Board of the RBNZ has no policy-making role, but is responsible for monitoring the performance of the Governor, and can recommend to the Treasury that he/she be replaced in the event that the inflation target is missed.

Canada, the United Kingdom (UK), Sweden and Australia followed New Zealand in introducing inflation targeting in the first half of the 1990s. The UK and Sweden adopted inflation targeting in 1992 and in 1993, following speculative attacks on their currencies which led to the abandonment of the exchange rate peg with other European currencies, known as the Exchange Rate Mechanism.[1] Canada and Australia adopted inflation targets in response to chronically high inflation expectations.

Although the precise triggers for the adoption of inflation targets may have been different in all of the above countries, the objective was the same – to reduce inflation and then try to lock-in price stability while minimising the output and employment costs of this policy shift. Most of these countries had relatively high inflation rates prior to the adoption of inflation targets. New Zealand, for example, recorded an inflation rate of 18.8 per cent in 1986 in the middle of an economic crisis. The United Kingdom recorded an inflation rate of 9.1 per cent in 1989, 9.9 per cent in 1990, and 8.2 per cent in 1991, just before introducing inflation targeting. Canada and Australia had achieved slightly better average rates of inflation, but with high volatility. Across the group as a whole, the average inflation rate was 10 per cent in the 1970s and 5 per cent in the 1980s.

The overall aims of the frameworks introduced by these countries can be summarised as follows:

a) to bring inflation down and keep it low;
b) to ensure an independence and accountable central bank;
c) to make it transparent that the central bank will pursue a single objective, price stability;
d) to stabilize inflation expectation; and
e) to enhance 'instrument independence'.

2.3 Challenges in small open economies: exchange rate pass-through and monetary conditions indices (MCI)

The challenge of inflation targeting seems to be greater in small open economies, such as New Zealand. These economies have large traded sectors, as measured by exports and imports relative to GDP, and their macroeconomic performance and policy decisions have little effect on the rest of the world. They are vulnerable to external shocks, most likely transmitted through exchange rate fluctuations, and policy options to counter these tend to be limited.

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[1] The United Kingdom was part of European Exchange Rate Mechanism (ERM), and the Swedish krona unilaterally pegged to the ECU.

The majority of emerging market economies in Asia are highly open, which raises the issue about how much weight to place on the objective of exchange rate stabilisation in designing a monetary policy framework. In practice, the monetary authorities in these economies tend to place a lot of weight on exchange rate movements in the setting of policy because of the effect of excessive exchange

Figure 2.1 Openness of Selected Emerging Market Economies and Advanced Countries (Trade Value/GDP)

Source: EIU
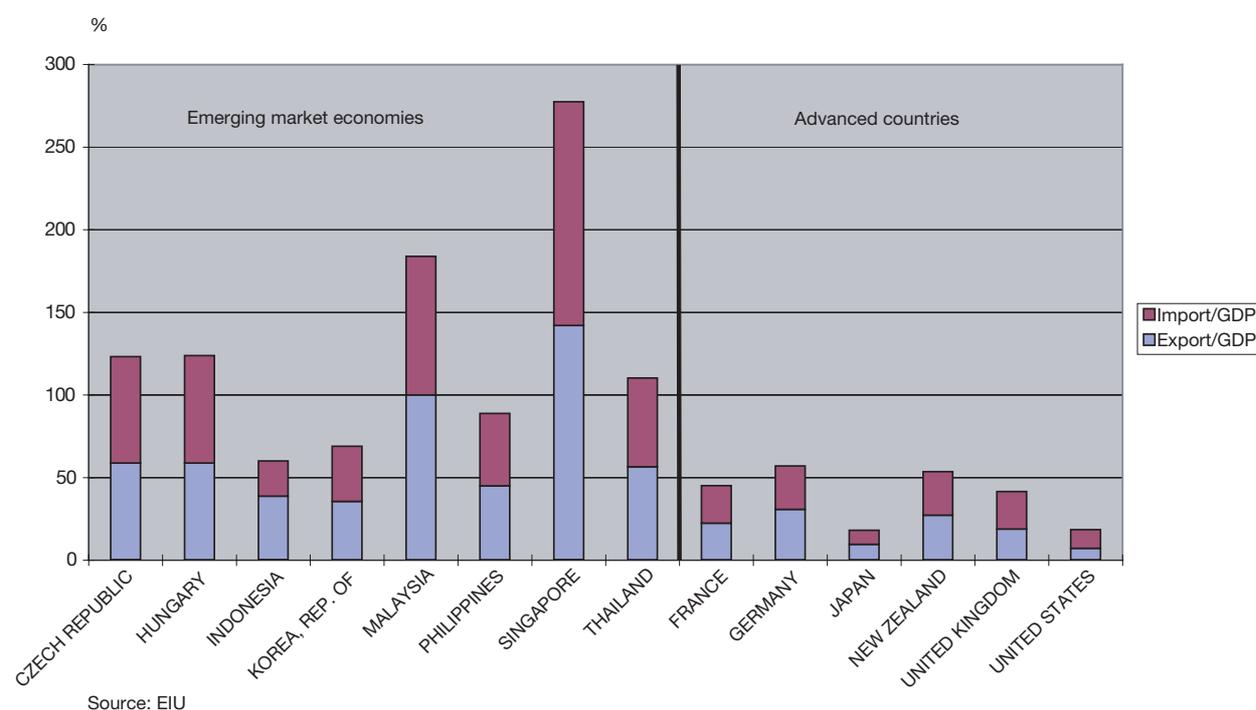
rate fluctuations on the output and profits of the traded goods sector, and its overall size and composition to the extent that fluctuations are persistent. However, Ball (1999) cautions against paying too much attention to exchange rate movements on the grounds that policy may become too activist. The following section discusses issues related to monetary policy in small open countries which will be relevant to later sections examining issues of inflation targeting in emerging market economies in Asia.

2.3.1 Exchange rate pass-through

The impact of exchange rate changes on domestic costs and prices will depend on the degree of pass-

through. This, in turn, depends on a number of factors, such as the invoice currency (foreign versus local currency) of imports; the price elasticity of demand for the imported goods; and the perceived persistence of exchange rate changes.

In general, the higher the degree of exchange rate pass-through, the more difficult it is for the monetary authorities to control the domestic price level. The authorities can try to offset any adverse changes in the exchange rate arising from external shocks but, in practice, it is likely to prove difficult to achieve a high degree of exchange rate stabilisation, using monetary policy in small open economies.

Some economists advocate the use of a Monetary Conditions Index (MCI) in the setting of monetary policy in these types of economy. The idea is that exchange rate changes are as an important influence on future inflation as domestic pressures arising from the deviation of output from its potential level and, hence, the monetary authorities should take both the exchange rate and interest rate into account when judging the overall tightness or looseness of policy. In fact, the RBNZ employed this approach in 1997, announcing an MCI as an operational target and constructing this as a weighted average of the change in the effective exchange rate and a short-term interest rate (90-day bank bill rate). This operational target was followed in a rather mechanical way leading to a situation in which the market reacted too much to changes in the MCI, most notably during the Asian crisis when the NZ dollar depreciated as crisis-hit Asian currencies collapsed. The depreciation and the resulting changes in the MCI were interpreted as a signal of future tightening by market participants which caused long-term interest rates to rise exacerbating recessionary forces. Following this experience, the RBNZ abandoned its MCI rule in 1999.

The exchange rate is an important variable in forecasting future inflation. However, the reasons for, and persistence of, exchange rate changes have to be carefully examined before determining whether and how monetary policy should respond. Having too narrow a target band both for the exchange rate and inflation rate would make monetary policy fluctuate widely responding to - sometimes temporary - exchange rate fluctuations.

2.4 Issues in implementing inflation targeting

Although the way in which inflation targeting has been implemented varies from one country to another, some lessons can be drawn from the experiences of countries that have successfully implemented an inflation targeting framework. These cover technical issues to do with the choice of the price measure to target, the level and time horizon of the target, and the design of escape clauses, and are discussed in the next section.

2.4.1 Who sets the target?

Based on the experience of advanced economies, it seems that 'goal independence' is not necessarily a prerequisite for successful inflation targeting. The inflation target can be set by either the government or the central bank, or jointly by both. In Sweden, for example, the Riksbank (the central bank) sets the target alone, while in Canada the target is set and announced jointly by the government and the Bank of Canada. In the UK, the Treasury rather than the Bank of England is responsible for setting the inflation target.

It is, however, important that the monetary authority has operational or instrument independence in achieving the target, that is independence from any government interference regarding the choice of policy instruments, and the timing and magnitude of any changes. The individual policy-maker or Committee should be independent from the government. No voting member of the government should be on the policy board, and the Governor should not be dismissed for having opinions different from the government with respect to how to achieve the target. Debelle and Fischer (1994) provide a good overview of the issues around goal independence and instrument independence.

The importance of distinguishing between goal and operational independence is clearly illustrated by the UK's experience of inflation targeting. The framework was introduced in 1992 but the government retained responsibility for setting the inflation targeting and achieving it. The role of the Governor of the Bank of England was limited to offering advice to the Chancellor of the Exchequer on how to achieve the target. Financial markets

Figure 2.2 Inflation Expectations Observed in the UK

* Note: Ten year ahead market inflation expectations
Source: HM Treasury
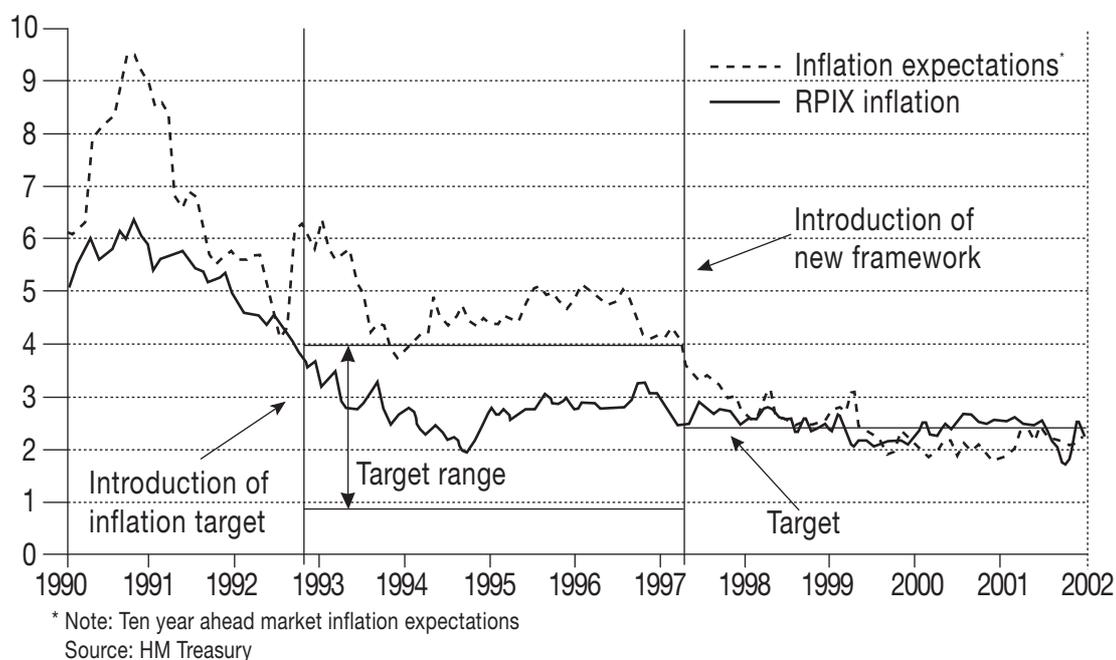
were sceptical about the government's commitment to meeting the inflation target, thus, inflation expectations observed in the market - as captured by the spread between straight and inflation-indexed long bonds - showed no tendency to converge to the inflation target. This only occurred following the government's decision to give the Bank operational independence in 1997 (Figure 2.2), suggesting that this was crucial to credibility of the new framework.

2.4.2 Price level or inflation rate targeting

The notion of price stability can be expressed either in terms of the level of prices or their rate of change. The difference between price level and inflation rate targeting is best illustrated by considering how the monetary authorities respond when the inflation target is missed. Under price level targeting, the authorities may set a target of k per cent growth in the level of prices each year. If the target is undershot in one period, the authorities would need

to engineer an increase in prices above the k per cent target in the following year to make up the gap and achieve their target. By contrast, in an inflation targeting framework, they would not necessarily respond to the undershoot, seeking only to try to meet their inflation target in the next period, treating bygones as bygones. The initial price level in the case of inflation rate targeting is simply rebased. Figure 2.3 illustrates the difference between price level and inflation targeting.

Figure 2.3 Price Level Targeting versus Inflation Rate Targeting
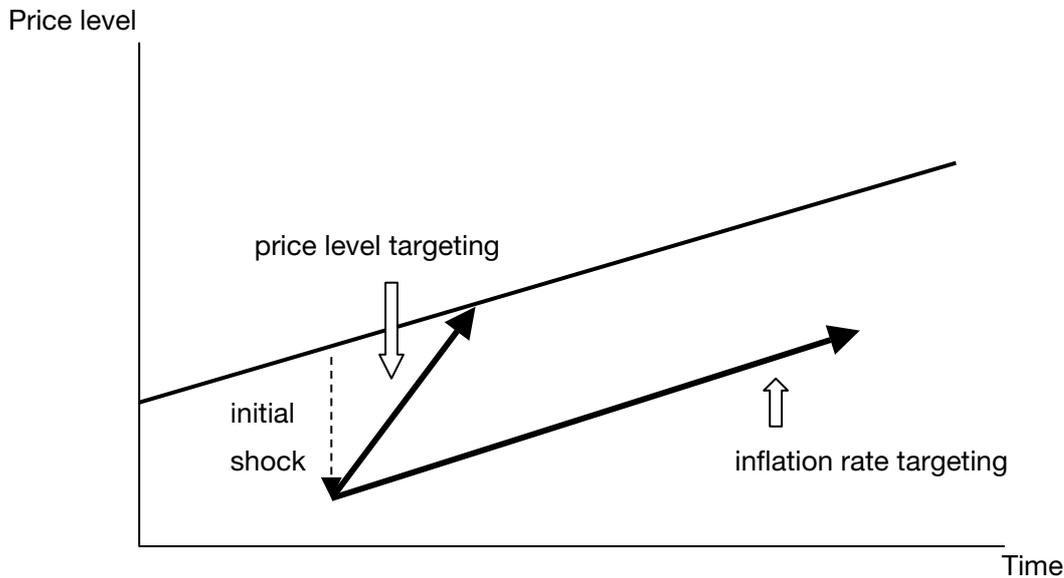
Price level targeting is rare. The only historical example is Sweden in 1931-1934 (see Berg and Jonung, 1999). Although, in theory, price level targeting offers a purer form of long-run price stability, it involves fine-tuning inflation rates in an attempt to compensate for past policy mistakes. In addition, it is arguably less transparent to the public than inflation rate targeting.

2.4.3 Core or headline inflation

The choice of which particular price index to target is important. There are generally two candidates: the headline inflation rate of the consumer price index (CPI) or some measure of core inflation rate, such as the CPI inflation rate excluding volatile components like fresh food and energy prices. Both are in use in advanced inflation-targeting countries, and have advantages and disadvantages.

Headline inflation has the advantage of being transparent and familiar to the general public. The disadvantage is that it includes items with volatile prices, such as seasonal food and energy, which

are affected by factors like the weather and international politics which are outside the control of the monetary authorities. In practice, central banks with a headline inflation target try to ignore temporary fluctuations caused by external or supply shocks. In many countries, there are escape clauses, so that the central bank is not held responsible for deviations from the inflation target caused by shocks that are beyond its control.

Measures of core inflation, which exclude these supply-side factors, have their own deficiencies. The concept of core inflation may not be so familiar to the general public and raises the institutional problem of who calculates the target measure. There are different ways of estimating core inflation, ranging from the headline CPI inflation rate, excluding volatile items, to more complicated approaches which reweight individual items of the price basket according to probability distributions deduced from the volatility of past inflation rates. If the central bank targets a measure of core inflation that it calculates itself, it could create a conflict of interest, thus leading market participants and the general public to suspect the possibility of

manipulation by the central bank. Therefore, if core inflation is to be targeted, the measure is best calculated by an independent agency.

In low-income countries, fresh food and energy have a large weight in the consumer price index. Therefore, the core inflation rate -that excludes these items -is far less representative of the cost of living. Targeting the core inflation rate, that is more appropriate on accountability grounds, may therefore not be so popular among the public.

2.4.4   Point or range targeting

Whether the inflation target is a point or a range is another issue. While point targeting may provide a clearer focus for market expectations, it may result in excessive fine-tuning and too frequent changes in the direction of policy. A point target also requires a high level of effectiveness and reliability of monetary policy which may be hard to achieve especially in small, open economies that are vulnerable to external shocks.

Range targeting may avoid the problem of fine tuning and provides some flexibility of policy responses to external shocks. If the range is sufficiently wide, excessive policy activism can be avoided. However, if it is too wide, it may not serve to discipline monetary policy or help to stabilize inflation expectations. Both point and range targets are in use among the advanced countries that have an inflation-targeting framework for monetary policy. The UK has a point inflation target while New Zealand, Canada and Australia have a range. In the case of the UK, a tolerance band of plus/minus 1 per cent is set. If the actual inflation rate is outside the tolerance band, then the Governor has to explain why the target was missed in an open letter to the Chancellor.

The choice about the specific level or range of inflation to target is crucial. If the target is too ambitious and proves difficult to achieve, the

framework is highly likely to lose credibility. If the inflation rate is very high when inflation targeting is introduced, it may be sensible to set a high inflation target initially, which can be adjusted downwards once inflation has been brought under control. This was the case in Canada, when it introduced inflation targeting in 1991.

There are two other issues relating to structural changes which are important when considering the level of the target. The first concerns price bias. The CPI usually contains an upward bias due to technological changes and changes in consumers purchase patterns that are not always well captured by a Laspeyres index. Although there are ways to mitigate the bias, it is not easy to correct perfectly for this. In the United States, the Boskin Commission Report estimated the bias to be 1.1 per cent for the 1995-1996 period. It declined as a result of revisions to the index made by the statistics office (Bureau of Labor Statistics), but is still estimated to be around 0.65 per cent (Gordon, 2000). The implication is that targeting a zero per cent level of inflation may not be optimal and may result in policy that is too tight.

The second is the unreliability of economic models, calibrated on past data and used for inflation forecasting, during periods of rapid structural change in the economy. For example, in the US during the mid-1990s, some economists called for interest rates to be increased because they believed that the unemployment rate had fallen below its NAIRU (Non-Accelerating Inflation Rate of Unemployment). It was later revealed in the late 1990s that the "new economy" - as captured by the information and communications technology (ICT) sector -had increased productivity growth. In those circumstances, the potential growth rate can be higher, and the unemployment rate can be lower, than before without inflationary consequences. Even the most prominent central bankers and economists feel that it would be difficult to identify promptly when and how the new

economy has arrived in the country. These observations lead to the conclusion that the floor for the inflation rate should not be set too low especially for countries undergoing major structural reform.

2.4.5　Target horizon

The time horizon of targets is important. Too short a horizon, such as a one-year horizon or less, is likely to cause difficulties because the lag between changes in policy and their effects is typically one to two years. A central bank with too short target horizon may be too activist in trying to achieve the inflation target.

The choice of time horizons may be different between the transition to low inflation and afterwards. If the inflation rate is well above its medium-term target range, a series of intermediate targets may be set to gradually bring it down. Too fast a decline in inflation rates may cause temporary costs in terms of output and employment, while too slow an adjustment prolongs the damage from inflation. Once the inflation rate has been reduced, a reasonably long target horizon is preferable to take account of the lag between changes in monetary policy and their effect on the economy.

Most central banks have tended to extend the target horizon, and in the case of the UK and New Zealand the time horizon is indefinite, which means that the central banks in these countries are required to always achieve the target. Other countries have a time horizon of between one and two years.

The success in the initial stage of introducing inflation targeting is important in determining the credibility of the new framework. In this regard, it is important to choose the timing of introduction carefully and to ensure that the target is achievable. In the case of the UK, it took several years for the actual inflation rate to converge to the medium term

target of 2.5%. In the case of Canada, the decline in the inflation rate was faster than had been hoped for in a series of intermediate targets. In both cases, by the time the inflation rate had fallen within the range of the medium-term target, confidence in the inflation target had been established.

2.4.6　Targeting asset prices

Whether the central bank should target asset prices (e.g., stock prices and land prices), when they conduct monetary policy is a controversial topic. House prices are taken into account to the extent that the targeting measure, which is generally CPI based, includes rents and imputed rents. However, there are differing opinions about whether policy-makers should try to target asset prices more directly.

One view is that asset prices, along with CPI inflation, should be included in the objective function of the central bank because of the damaging effect of asset price booms and busts on the financial system as well as the real economy. It is argued that inflation-targeting central banks should respond to asset price misalignments, although it may be difficult to identify these in a timely way (Ceccetti et al., 2000; Ceccetti et al., 2003). Some go so far as to advocate a new measure of inflation - comprising a weighted average of CPI and asset prices - for the central bank to target.

Other economists believe that, once inflation targeting is in place, a central bank should not respond to asset price fluctuations over and above their effects on future inflation. In this way, they are treated like any other economic indicator used to forecast inflation. The wealth effect of asset prices on consumption, and the cost of capital channel for investment, are important, but they only require monetary policy-makers to respond to their effects on aggregate demand and inflation in a standard forward-looking manner. It is argued that

any systemic financial stability issues arising from asset price booms and busts, such as an increase in non-performing loans, should be dealt with by strong financial supervision and regulatory policy, rather than monetary policy (Bernanke and Gertler, 2001; Goodfriend, 2003; Mishkin and White, 2003).

2.5 Inflation targeting among emerging market economies outside of Asia

Since the early 1990s, an increasing number of central banks in emerging market economies have allowed their currencies to float and adopted inflation targeting as an alternative nominal anchor. The countries which the IMF recognizes as targeting inflation includes Brazil, Chile, Colombia, the Czech Republic, Hungary, Israel, Mexico, Poland, South Africa, and Asian countries such as Korea and Thailand. A number of other countries say that they target inflation but are not recognised by the IMF. The following conditions are considered necessary in a 'fully-fledged' inflation targeting framework: 1) publicly announcing a numerical target (level or range) for the inflation rate, 2) institutionally committing to a framework in which achieving and maintaining price stability is the primary objective of monetary policy, 3) conducting monetary policy in a forward-looking way including the use of inflation forecasts as an operational target, 4) explaining monetary policy management in a transparent manner, and 5) having a high degree of central bank accountability.[2]

The inflation targeting frameworks in place in emerging market economies tend to be more diverse than those among advanced countries. Some challenges are common to all emerging market economies, while some others are specific to individual countries. A number of recent papers examine the features of inflation targeting among emerging market economies and draws lessons, including Mishkin (2000), Schaechter et al (2000), Mishkin and Savastano (2001), Eichengreen (2002), Jones and Mishkin (2003). Amato and Gerlach (2002) consider inflation targeting in emerging market and transition economies and argue that this is - when suitably modified - a useful policy framework for these economies.

As far as we are aware, this Occasional Paper is the first comprehensive survey and assessment of inflation targeting in Asia. Before moving to look at individual case studies, the following sections discuss potential problems of inflation targeting in a number of emerging market economies outside of Asia - including Chile, Israel, the Czech Republic, Poland and Brazil. The issue about the appropriateness of the exchange rate regime in an inflation targeting framework - a somewhat controversial topic - is dealt with in Chapter 3.

2.5.1 Challenges

There are a number of common challenges faced by emerging market economies in designing an inflation targeting framework, such as ensuring independence of the central bank, strengthening the credibility of monetary policy, building up expertise in inflation forecasting, and the problem of liability dollarization. Other policies, like sound fiscal policy and prudential financial supervision, are also important (Mishkin, 2000), but are prerequisites for any successful monetary policy framework not just an inflation targeting one.

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[2]   The last two conditions, transparency and accountability, are neither prerequisites nor necessary conditions for inflation targeting. But, based on the experiences of advanced countries, we conclude that these two conditions enhance the effective functioning of the framework by helping to stabilize inflation expectations and increasing credibility. Thus, in a full-fledged framework, these conditions are expected to be fulfilled.

An additional consideration is that the exchange rate typically plays a critical role in managing emerging market economies.[3] These economies are vulnerable to external shocks transmitted through the exchange rate and its associated volatility which, in turn, reflects the volatility of capital flows. Monetary policy and the exchange rate are closely intertwined, while monetary policy responds to movements in the exchange rate in an attempt to stabilise output and inflation, the exchange rate is sensitive to changes in monetary conditions. The channel from shocks in the exchange rate to monetary policy is often overlooked in the literature of inflation targeting, but is of crucial importance in emerging market economies.

In many emerging market economies, a currency crisis (either threatened or actual) has served as a trigger for the adoption of inflation targeting as an alternative anchor for monetary policy. Brazil and Israel are typical examples. Brazil adopted inflation targeting in June 1999 after it was forced to abandon its crawling exchange rate peg, as a result of contagion from the Russian crisis. Israel introduced inflation targeting in 1992, at a time of hyperinflation and problems arising from a large stock of public debt and an extensive social security net. The Czech Republic adopted inflation targeting as a result of contagion from the Asian Financial Crisis which forced it to move to a floating exchange rate regime from a relatively tight peg to a currency basket.

Although most inflation targeters have floating currencies, a few countries have announced both an inflation and an exchange rate target simultaneously. Chile and Israel are examples.[4] After the Central Bank of Chile was granted independence in 1989, the Bank announced its inflation target (in 1991) to supplement the existing crawling exchange rate band. It abandoned its crawling peg in 1999 moving to a fully-fledged inflation targeting regime. Israel has maintained targets for inflation and the exchange rate, although the influence of exchange rate fluctuations on monetary policy has diminished over time. The current exchange rate band (in 2002) has an approximately 36 per cent width to a currency basket that reflects the composition of Israeli foreign trade in goods and services.

2.5.2 Central bank independence

As in advanced countries, an important prerequisite for successful inflation targeting in emerging market economies is central bank independence.[5] The nature of independence from government is two-fold: 'institutional independence' (independence from the government as an institution) and 'operational or instrument independence' (independence from any interference of the government regarding monetary policy conduct).

In many countries, the framework has included legislation to ensure institutional and operational independence of the central bank. At the same time, the primary objective of monetary policy has been explicitly identified as price or currency stability in most cases, but there are a few exceptions. The Bank of Israel, for example, has a rather vague mandate (though a revision of the law

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[3]   An important role of exchange rates in emerging economies is noted by Amato and Gerlach (2001). They argue that "coexistence of several nominal objectives might lead to situations of conflicts, but this is unlikely to be important as long as policymakers adopt a clear hierarchy between the objectives."

[4]   The pursuance of dual inflation and exchange rate objectives is not restricted to emerging market economies. For instance, Spain pursued both the inflation target and the exchange rate target when it participated in the ERM (the band with 15 percent margins, which was widened after the 1992 crisis) prior to the introduction of the Euro.

[5]   This point is also emphasized by Amato and Gerlach (2001) as one of the preconditions.

is currently under discussion). Interestingly, the legislation ensuring central bank independence in emerging market economies that have successfully switched to inflation targeting tends to be more rigid than for advanced countries. This is related to the need to establish greater credibility because of their unfavorable history of hyperinflation caused by political interference and monetization of excessive government deficits (Schaechter et al., 2000).

The issue of central bank accountability has also been explicitly addressed in some countries. For example, in Israel and Brazil, the central bank has to publicly explain the reasons for any deviations from the target. In Brazil this is done by an open letter to the Minister of Finance. An important issue in these types of economies is to what extent the central bank should be held responsible for deviations from the inflation target in the face of price shocks that are out of their control. Because of the importance of commodities or regulated prices in these economies, central banks in emerging market economies tend to have less power to control inflation than in an advanced country. One solution is to allow for escape clauses.

Alternatively, the central bank could be asked to target a measure of core inflation, that excludes items with volatile inflation rates or that are administered by government. Such indices must be carefully chosen and calculated so as not to damage the credibility of the new framework. The Czech National Bank initially chose a measure of 'net inflation' as its target, but it switched to a headline measure because the coverage of their core measure was thought to be too narrow and,

consequently, sometimes showed a large discrepancy with overall economic and financial conditions in the economy. A critical issue when using a measure of core inflation is which agency is responsible for producing it. In the case of Brazil, there was a problem with manipulation of the core inflation rate causing the government to switch to the headline inflation rate as the target for monetary policy.

Ultimately, the credibility of the policy framework will depend on the central bank's success in reducing the inflation rate and keeping it low. The problem is, of course, that reputation takes time to build. During the transition to low inflation, an inflation-targeting framework which includes strong institutional and operational independence – backed by strict legal arrangements – can help to enhance the credibility of policy in emerging market economies.

2.5.3 Inflation forecasting

Inflation forecasting in emerging market economies is, in general, a more difficult task than in developed countries. Economic variables tend to be more volatile, and the reliability and quality of economic statistics, including price indices, is more questionable. The coverage of the CPI tends to be limited, and bias of the price indices is likely to be more serious than in advanced economies owing to rapid structural change in consumption patterns, and the economy more generally. (The representative consumption basket changes rapidly, which makes any resulting bias of the price indices larger if these are constructed according to a Laspeyres formula.[6]) Understanding and modelling monetary transmission mechanism is

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[6] When relative prices change from year *t* to year (*t*+1), consumers buy more of the less-expensive goods and services and less of the more-expensive goods and services in year *t*+1. The Laspeyres index fixes the weights of the basket at year *t*. The index is biased upward since more-expensive goods and services are overrepresented in year *t*+1. The bias is aggravated when the change in relative prices is greater. Relative prices in emerging market economies tend to be more volatile than those in advanced countries.

also harder. In particular, it is not easy to observe or estimate the financial market expectations about future inflation. In advanced economies, such expectations can be extracted from bond yields, but in emerging market economies, bond markets are not sufficiently deep to be used for this. The pass-through of exchange rate movements on inflation is also likely to be larger given that many of these economies are highly open. Against this background, most inflation-targeters in these economies have tended to rely less on quantitative techniques, such as econometric model building, when forecasting inflation.

2.5.4 Liability dollarization

The appropriateness of inflation targeting in emerging market economies has been questioned by Eichengreen (2002) because of the high degree of borrowing in a foreign currency, principally US dollars, by governments, corporations and banks - termed liability dollarization. Foreign currency borrowing is cheaper because of the risk premium attached to domestic currency borrowing reflecting - among other things - the risk of a sharp currency depreciation. Liability dollarization is one reason for why many of these countries attempt to stabilise their currencies against the US dollar instead of letting them float freely. A more constructive solution would be to minimize the cost of holding liabilities denominated in foreign currencies when the exchange rate fluctuates. This could be done by encouraging the development of better currency hedging products and facilitating their use by developing deeper financial markets, or by perhaps regulating banks' net open positions in foreign currency.[7] Inflation targeting does not directly solve the problem caused by currency mismatch, but it

can contribute to stabilizing financial markets provided that the framework is credible.

2.5.6 Asset prices

There has been considerable debate over the way in which monetary policy should respond to an asset price bubble, but a consensus is yet to emerge. What is clear is that no country can insulate itself from possible asset price bubbles. Emerging market economies with liberalized capital accounts are more vulnerable to these because of the size of capital flows relative to the economy. Moreover, sharp fluctuations in asset prices have more damaging effects on these economies because of liability dollarization and inadequate financial markets supervision. There is, however, further scope for the authorities to limit the effects of an asset price bubble by strengthening the supervisory and regulatory framework of the banking sector.

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[7] Even though bank balance sheets do not have currency mismatch, they are still vulnerable to sharp fluctuations in the currency to the extent that the corporations to which they lend have dollar-denominated liability. A currency crisis which leads to an increase in non-performing loans will likely affect the stability of the banking sector.

Chapter 3. Exchange Rates and Inflation Targeting

3.1 Lessons from the Asian financial crisis

During the 1990s, there was a marked increase in international capital flows from developed to developing countries as well as among developed countries. While private capital inflows, and in particular foreign direct investment, contributed towards the development of emerging market economies, shorter-term portfolio capital flows exposed these countries to the risk of financial disruption caused by an abrupt change in net outflows. This has led to a new type of currency crises occurring among emerging market economies, including Mexico, Thailand, Indonesia, Korea, Russia, Brazil, Turkey, and Argentina. The crisis-hit countries shared common features, in particular, large capital inflows and outflows and, in many cases, an exchange rate pegged to the US dollar. (There are many papers and books written on the Asian currency crisis. See Ito, 1999a, 1999b, 2000a for the views of one of the authors of this paper.)

With regard to the Asian Financial Crisis in 1997-98, there is a general consensus that the existence of a pegged exchange rate in the crisis-hit economies was a contributing factor. A *de facto* dollar peg generated a belief that the exchange rate was effectively fixed, thereby leading both lenders and borrowers to ignore exchange rate risk in cross-border financial transactions which consequently increased in size. Borrowers were attracted by the lower interest rates offered by foreign currency borrowing, while lenders were under the impression that they could earn higher interest income without bearing any currency risk.

Bank loans were the most liquid form of capital flows. Excessive capital flows to many countries, in particular Thailand, occurred primarily in the form of loans (deposits) from foreign banks to banks in the host country. These inflows occurred at such a rate that the domestic real economy was unable to absorb them, thus generating asset price bubbles in real estate and stock markets - assets which are not liquid. Thus, when foreign banks started to withdraw the funds, Thai banks had difficulty liquidating assets to meet their obligations. A similar process occurred in Korea later in the year. An important lesson from the Asian Financial Crisis is the role played by the pegged exchange rate in encouraging short-term foreign currency borrowing which increased the exposure of the financial sector to a turnaround in capital flows and its associated effect on the exchange rate.

Another lesson from the crisis was that sharp and sudden changes in the real exchange rate can have a damaging effect on the real economy, via changes in competitiveness and trade balances. The yen depreciation, from 80 yen/dollar in April 1995 to 130 yen in 1997, resulted in a loss of competitiveness of Asian countries' exports to both Japan and the United States (although to some extent the depreciation was a correction from the unprecedented high level of the yen, – as is discussed by Ito, 2000b).

Although, there has been much criticism of the exchange rate regime in these crisis-hit economies, it is less clear what the alternative should be. This question has been discussed at various international forums and academic conferences in the last five years but a consensus is yet to emerge.

3.2 A two-corner solution?

In the wake of the Asian Financial Crisis, the so-called two-corner solution has become popular among economists and policymakers alike, especially in the United States. Advocates of this view believe that the only stable and desirable exchange rate regime is either a hard peg or a free

float. A hard peg is generally taken to mean a fixed exchange rate regime backed by a currency board, although some include dollarization, which involves extensive use of the US dollar for both circulation and as the unit of denomination for prices and contracts. The definition of a free float is easier: the exchange rate is determined purely by market forces with no foreign exchange intervention by government.

Those who advocate a two-corner solution emphasise three facts. First, all of the crisis-hit countries (Mexico, Thailand, Korea, Indonesia, and other Asian countries, and later Russia and Brazil) had a fixed exchange rate regime, but not a currency board, in place prior to the crisis - in other words, a soft rather than a hard peg. Second, those countries which had a currency board, namely Argentina and Hong Kong, managed to limit any contagion effects on their economies from currency crises in neighboring economies. Third, more countries have switched to either a hard peg or a free float in recent years in place of some kind of intermediate regime (see Fischer, 2001).

The difference between a hard peg and a soft peg regime is that the former involves an explicit commitment of the monetary authorities to the peg, which is underpinned by an automatic adjustment of the domestic money supply when deemed necessary by changes in net capital flows. Hence, when capital flows into the economy, the domestic monetary base expands putting downward pressure on interest rates. The domestic currency in circulation rises as foreign currency reserves increase to maintain the pegged exchange rate. The converse happens when capital flows out. In theory, changes in domestic interest rates relative to foreign interest rates should act as an automatic stabiliser for the exchange rate, but, in practice, these are generally insufficient to maintain the exchange rate in the event of a large shock e.g. to investor sentiment.

Those who criticise the two-corner solution approach make three points in turn (see, for example, the discussion paper presented to the ASEM meeting in Kobe by the Ministry of Finance of Japan, and that of France (2001) which advocates a basket currency regime instead). First, that a currency board regime shares the same potential problems as a fixed exchange rate, whether a country has a hard or soft exchange rate peg. Although the exchange rate will be stabilised against the country to which it pegs, to the extent that it has a diversified trade structure, it will still be exposed to changes in its exchange rate and export competitiveness with third countries (against which it has a floating exchange rate). For example, many Asian countries that stabilise their currencies against the US dollar have a high proportion of their trade with Japan, Europe, and neighbouring Asian countries, as well as the US. For a typical Asian country, less than half of their trade is invoiced in US dollars, thus changes in the yen-dollar and euro-dollar exchange rate can have a significant effect on their (trade-weighted) export competitiveness.

Second, although a currency board gives the impression of being 'speculation-proof' because the domestic currency is fully backed by foreign reserves, it is not invincible. In the event of speculation against the currency and large capital outflows, even foreign reserves which are equal in value to the domestic monetary base, or even M1, may not be sufficient to maintain the peg.

Third, the simultaneous speculation against the Hong Kong dollar and in the Hong Kong stock market in October 1997 showed that speculators can still make money in attacking currency boards even if the peg is successfully defended. During the Asian Financial Crisis, speculators took short positions in both the Hong Kong dollar and the Hang Seng. Substantial capital outflows led to a sharp rise in interest rates in an attempt to defend the peg and an associated decline in stock prices.

Short positions in both the Hong Kong currency and stock market, offered a sure-win strategy, whether the US dollar peg gave way, or, if stock prices fell as a consequence of increases in interest rates to defend the peg. The strategy was termed a 'double play'.

In addition to these points, the collapse of the Argentinian currency board in January 2002 has cast serious doubt on the sustainability of a hard peg. There is general agreement that this policy helped to bring inflation under control. During the 1980s, Argentina experienced hyperinflation, with consumer prices rising by 3079.5 per cent in 1989 (Figures 3.1 and 3.2). They declined rapidly following the introduction of a currency board regime in 1991, to under five per cent in 1994, but this was not without costs. Between the end of

the 1990s to 2001, the Argentine economy fell into severe difficulties for two reasons. First, the *real* exchange rate appreciated, mainly because the currencies of Argentina's major trading partners, Brazil and the European Union, depreciated while the Argentine peso was fixed to the US dollar. The depreciation of the Brazilian currency, in particular, had a large impact on the Argentine economy. Second, fiscal deficits increased questioning whether the rise in public debt was sustainable. By its very nature, the currency board regime left no scope for monetary policy to respond to the economic downturn caused by a decline in export competitiveness. The Argentine experience has cast doubt on the viability of a hard peg regime when strict requirements – such as flexibility in prices and wages, fiscal discipline, and a strong financial sector – are not fulfilled.

Figure 3.1 Inflation in Argentina
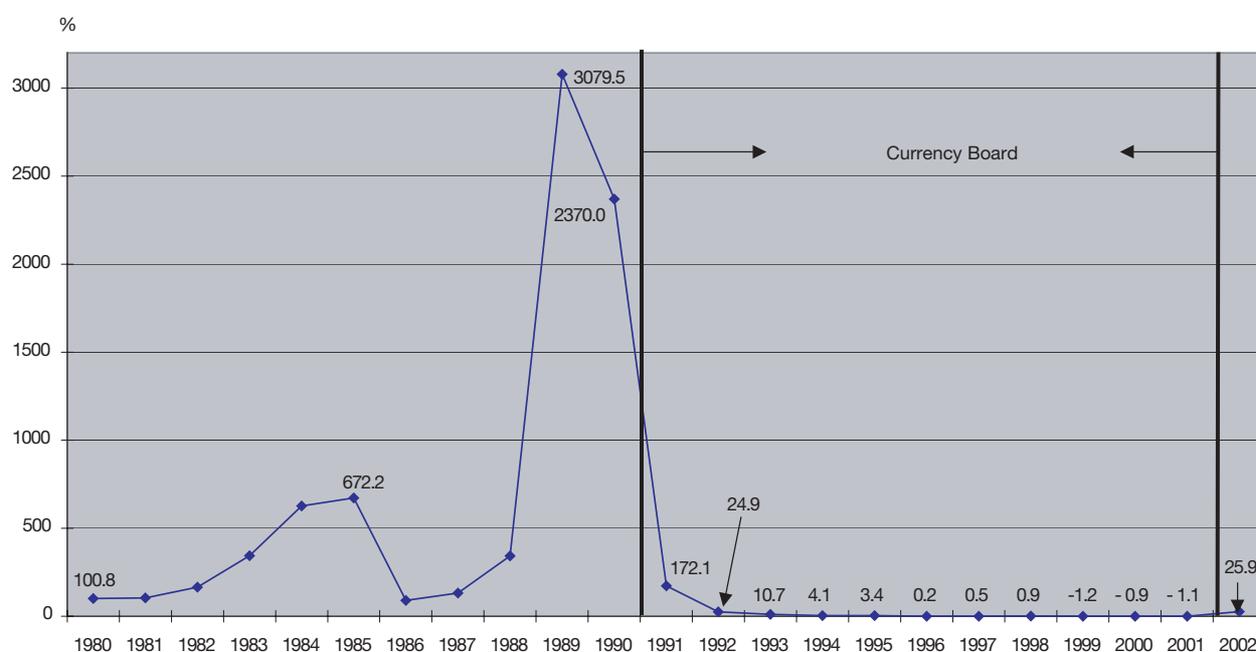
Source: IMF "International Financial Statistics"

Figure 3.2 Real GDP Growth Rate in Argentina
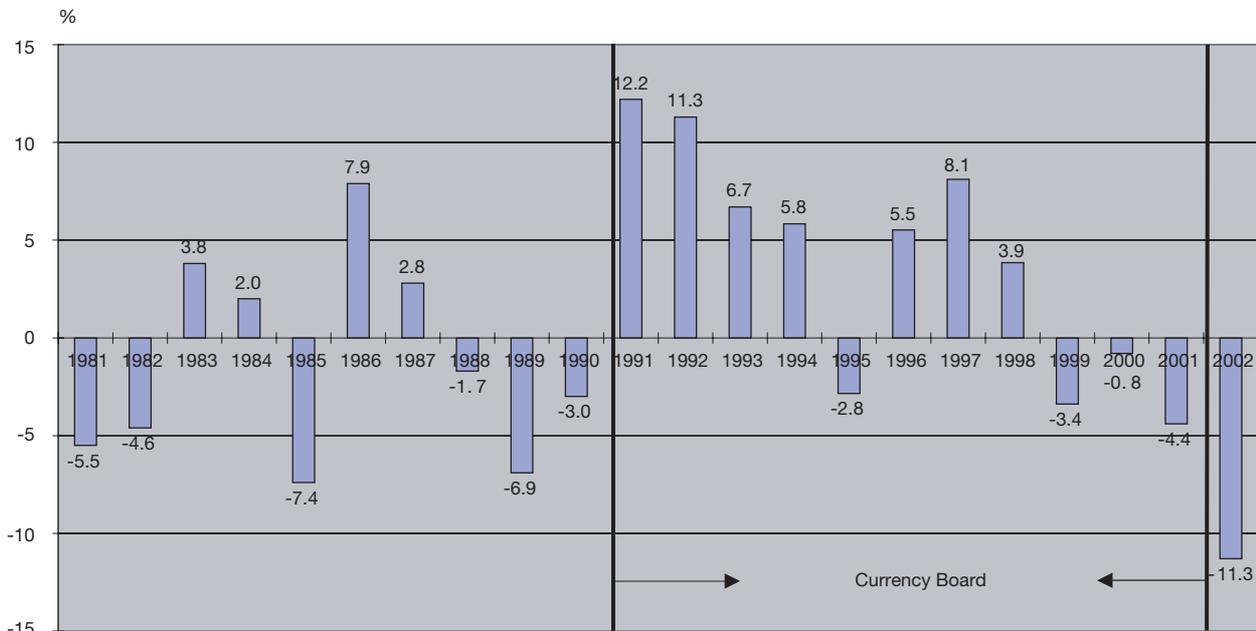
Source: EIU

What about the other extreme of a freely floating exchange rate? If the exchange rate is left to the market with no foreign exchange intervention, it can appreciate or depreciate in response to shocks to a country's export competitiveness. However, this raises other potential problems, the most important one being the risk of a serious misalignment. A significant misalignment may lead to sudden changes in export competitiveness, while a high degree of volatility may discourage investment. It is sometimes said that emerging market economies have a 'fear of floating' (Calvo and Reinhart, 2000) which may be understandable given the size of their portfolio flows relative to GDP, and their high degree of openness.

If a two-corner solution to the choice of exchange rate regimes is neither stable nor desirable, is there a middle ground that is not a soft peg? Several economists have advocated a basket currency regime for these countries. This option is analysed in the following section.

3.3 Managed exchange rate regimes

A basket band system has been proposed by, among others, Ito, Ogawa, and Sasaki (1998), Williamson (2000), and Ogawa and Ito (2002). A common feature of all of these proposal is that a country adopts a managed exchange rate with the feature of 'basket, band, and crawl' or BBC for short. The central exchange rate is determined by a basket of currencies of the country's main trading partners, but has a band of flexibility within which the exchange rate is allowed to fluctuate according to changes in the value of currencies within the basket. It is argued that this provides some certainty about the exchange rate for financial markets and facilitates the efficiency of long-term fixed investment planning. Flexibility of the exchange rate within its set band allows the country to avoid a sharp change in its export competitiveness in the face of a sharp change in one of the currencies in the basket.

Another reason for preferring a basket band currency regime is its effect on capital flows. A pegged exchange rate may encourage excessive capital inflows as investors and borrowers believe that there is no exchange rate risk, while a freely floating exchange rate may encourage speculative attacks at the first sign of vulnerability. Ogawa and Sun (2001) show that capital flows respond more to the US dollar exchange rate risk than to yen exchange rate risk. By contrast, it is argued that a currency basket provides sufficient exchange rate risk to prevent excessive foreign currency borrowing by emerging market economies.

The implementation of a currency basket system raises several questions, specifically: (1) the exact composition of the basket-the currencies to be included in the basket and their respective weight; (2) the elasticity of the band – how wide it should be and how hard or elastic it should be; and (3) the speed of crawl – how quickly the central rate should be adjusted over time.

The central or basket exchange rate is defined as the exchange rate that keeps the weighted average value of a certain mix of currencies fixed. To determine the central rate, a good starting point is the trade-weighted effective exchange rate. Some have suggested that this should be adjusted according to the degree of pass-through for imports and exports in the destination market. For example, suppose that the baht is to be tied to the dollar and the yen with equal weights, when the yen depreciates against the dollar by 10 per cent, the baht is to depreciate by 5 per cent vis-à-vis the US dollar. On the difficult question of the composition of the basket, Ito, Ogawa, and Sasaki (1998) have proposed minimizing the volatility of trade surpluses by choosing weights for Asian emerging market economies that export goods to Japan and the United States in competition with domestic producers in Japan and the United States. In theory, the optimal weights should be chosen according to the price elasticity of exports

in destination markets as well as trade weights, however, because it is difficult to estimate these elasticities reliably, trade weights may be preferred.

The next question is how wide the band should be. The band around the central rate is designed to provide some flexibility for the market exchange rate because it is difficult to pinpoint precisely what the correct exchange rate is. Although pegging to a basket of currencies rather than a single one is preferable, this would still be risky without a band. It is difficult to come up with a precise criterion for deciding the width of the band. If the band is too narrow, a strategy of defending it may lead to the same trap as the soft peg to the dollar, whereas, if it is too wide, there may be little difference, in practice, from a free float.

The basket band regime is essentially a compromise between a fixed and floating exchange rate. It is designed to provide some stability of the exchange rate while allowing for flexible movements within a preset band. Flexibility is required when faced with frequent external shocks, but at the same time this is restricted to within a certain range of fluctuation. Some stability is given by the understanding that the exchange rate will not become delinked with its fundamental determinants - if the exchange rate threatens to move outside its preset bands, this will prompt a response from the monetary authorities. That is not to say that the basket currency regime is a silver bullet, and that countries that adopt this system can avoid speculatively attacks against their currencies. In particular, its success depends on the ability of the authorities to calculate the optimal basket weights, which may prove tricky.

There is also a regional challenge. Suppose that a group of countries with diversified trading partners in Asia decides to adopt a basket currency regime separately. Several complication remain. First, the dominant role of the US dollar as a key currency, especially as a medium of exchange, cannot be

ignored. Second, the problem of coordination failure has to be overcome.

Ogawa and Ito (2002) analyze the coordination failure in choosing an exchange rate system in a two-country game theoretic model. Consider a case of two countries, say Thailand and Malaysia: Thailand exports their goods to Malaysia, Japan, and the United States, and Malaysia exports to Thailand, Japan and the United States. The optimal weights between the yen and the dollar depend on how much the Malaysian ringgit is moving with the dollar and the yen. The optimal dollar weight (W_B) of Thailand depends on the actual dollar weight (W_A) of Malaysia. The response function of Thailand is drawn as the BB line in Figure 3.3 (and 3.4). When Malaysia chooses a particular weight of the dollar (W_A), Thailand finds it optimal to choose a particular weight indicated by the line

BB. The optimal dollar weight of the Thai baht is essentially (in a simplified model) a function of the trade weight of the dollar-linked countries of Thai exports and imports. When Malaysia increases the dollar weight, Thailand finds itself exporting more to the dollar region. This response function is drawn as the BB line in Figure 3.3 (and 3.4).

Similarly, the Malaysian response to the Thailand weight is drawn as the AA line in Figure 3.3 (and 3.4). The equilibrium of optimal weights is the intersection of the two lines, shown as point E. Figure 3.3 shows the stable equilibrium case, where the sequential adjustment will lead to the equilibrium, while Figure 3.4 shows the case where a sequential adjustment will lead to either the dollar peg or the yen peg, unless the initial point is exactly at the interior equilibrium.

Figure 3.3 Equilibrium of Optimal Weights for a Basket Currency
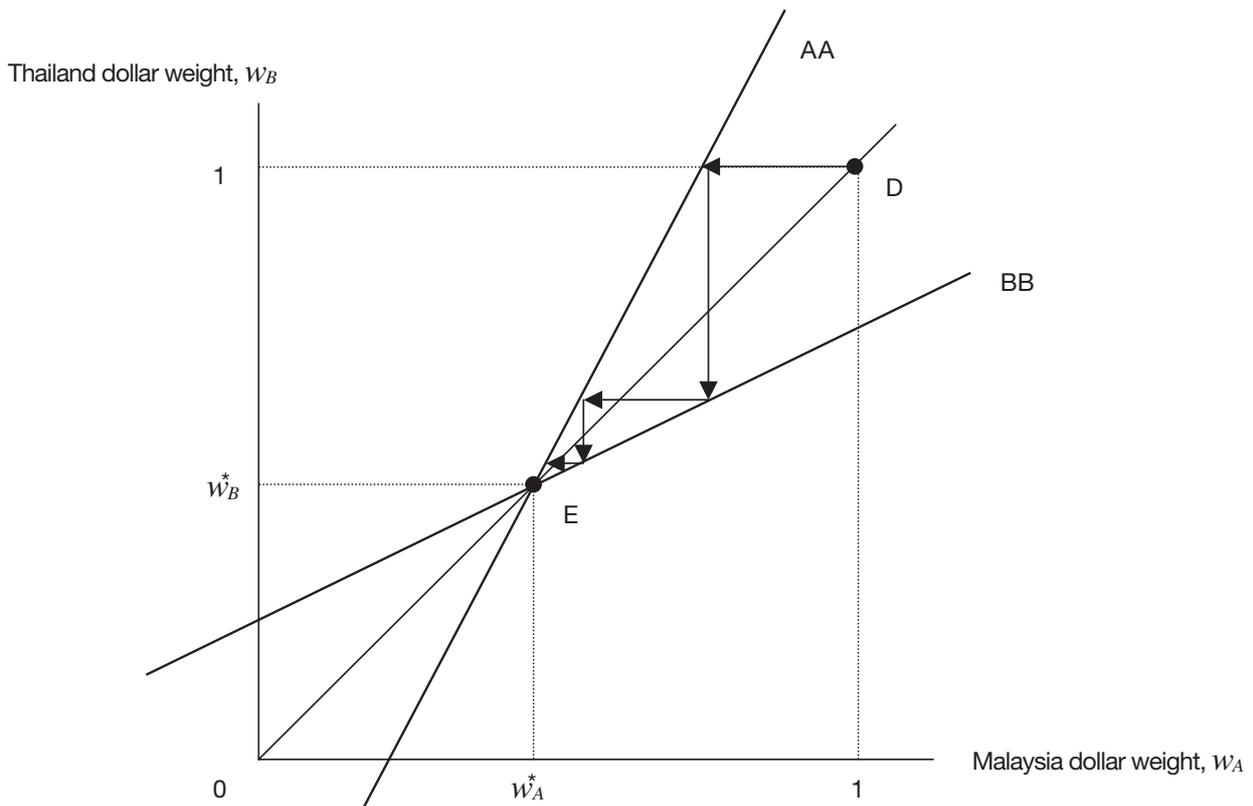
Figure 3.4 Unstable Equilibrium of Optimal Weights for a Basket Currency
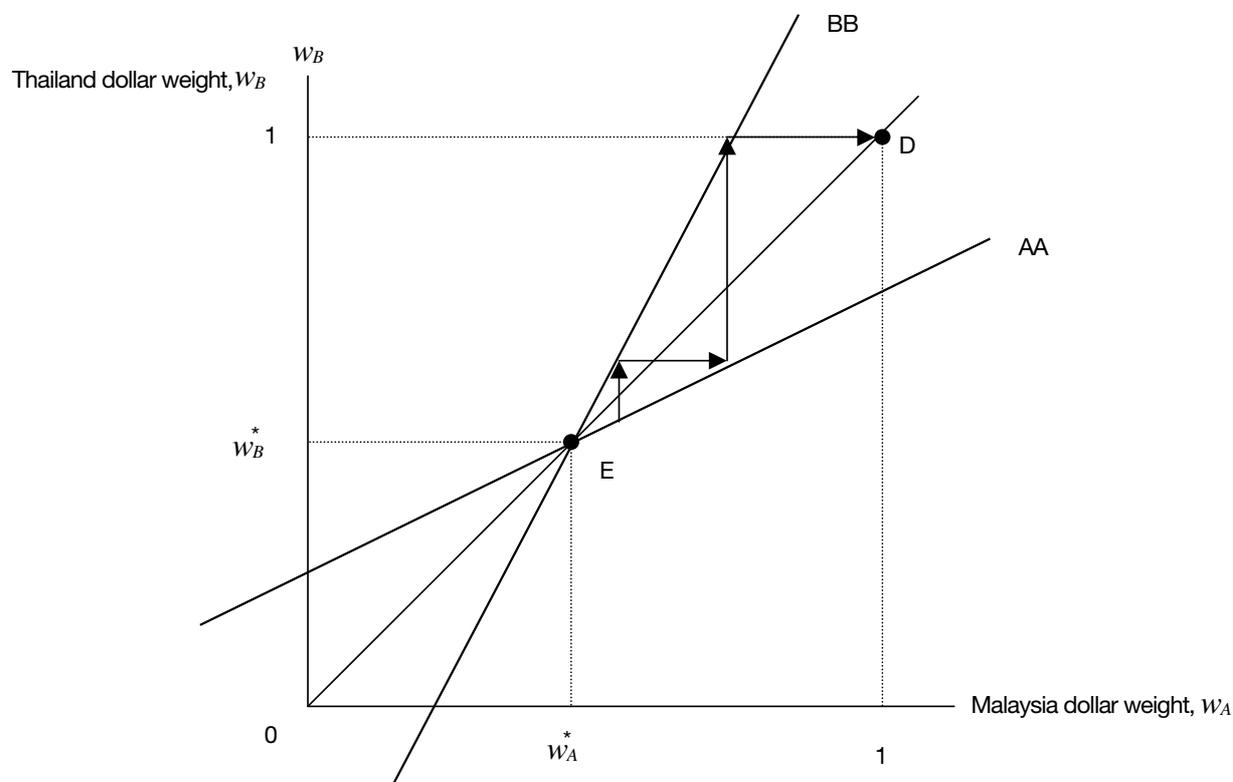
If Thailand switches from a dollar peg to a currency basket while Malaysia remains on the dollar peg, Thailand may face increased fluctuations in price competitiveness and, as a result, trade balances, when the yen/dollar rate fluctuates widely. Therefore, Thailand would revert back to the dollar peg system. Only when both Thailand and Malaysia coordinate the timing as well as the basket weights to adopt the currency basket peg, will the currency basket regime for a group of closely competing Asian countries be successfully implemented. Coordination failure is more likely if monetary authorities are tempted to try to avoid taking action for fear of a political backlash. They need a mechanism to overcome a coordination failure. A formal adoption of a common currency basket, that is the weights are fixed to all countries, may be one way to overcome this, as well as for preventing competitive devaluations.

In order to overcome the coordination failure, a basket common to all countries in the region may be helpful. The optimal basket, in the sense of Ito, Ogawa, and Sasaki (1998), may be different from one country to another, but, if the band is wide enough and the fluctuations among the major currency are small enough, then adopting a common basket with a band may include all the individual optimal baskets within the band.

3.4 Inflation targeting and a managed exchange rate regime

One of the problems of a fixed exchange rate regime with no capital controls is that monetary policy has to be assigned to the exchange rate and cannot be used to manage the domestic economic conditions. This may be a serious constraint in the face of large imbalances in the domestic economy.

In theory, a floating exchange rate regime has advantages in that it allows monetary policy to be geared towards domestic economic conditions. In practice, however, monetary policy cannot ignore movements in the exchange rate. In particular, future inflation depends on changes in the exchange rate, hence it needs to be taken into account alongside the other factors considered when setting monetary policy. There is also causation the other way, running from monetary policy to the exchange rate so that monetary policy decisions have an additional channel through which to affect future inflation.

A basket band regime is most likely compatible with inflation targeting. Although it is possible that this combination risks assigning too many goals for a limited set of policy instruments, there are two arguments in favour of this mix. First, the bands around the exchange rate and inflation targets should provide some room for manouevre in the event that the exchange rate and inflation target require different policy adjustments, second, it is more likely that the currency and inflation targets agree in terms of the direction of monetary policy.

A managed exchange rate regime is compatible with inflation targeting under a number of external and internal shocks. First, suppose there is an exogenous currency appreciation as a result of a shift in preference of investors. That would tend to lower inflation through direct price pass-through, and by reducing exports and therefore aggregate demand. Both the basket currency band and inflation targeting require lower interest rates, in order to encourage capital outflows to correct the overvaluation of the currency and to reduce deflationary pressures.

Second, suppose there is a domestic inflation shock caused by excessive wage growth. Monetary policy should be tightened to keep inflation on track with its target rate. Higher domestic prices will reduce export competitiveness

with a negative effect on the trade balance and putting downward pressure on the currency to restore competitiveness.

Third, an adverse supply shock such as a drought, or destruction of productive capacity will increase prices and reduce output. The exchange rate will likely depreciate due to current account deficits and lower output. Again there would be no conflict between the basket band regime and inflation targeting (although output fluctuations would be large in this case and defining escape clauses beforehand might therefore be helpful).

One caveat is that the optimal mix of inflation and exchange rate targets may become tricky when massive capital flows occur in response to changes in interest rates. Suppose, for instance, that there is an adverse supply shock. Prices will tend to rise causing the central bank to tighten monetary policy by raising interest rates. This would attract capital inflows despite the contraction in output. The exchange rate may well appreciate as a result, more than offsetting any depreciation pressures coming from the initial shock which will lead to a fall in export competitiveness.

Table 3.1 examines the direction of monetary policy in response to a combination of shocks in domestic inflation and foreign exchange markets. When the inflation rate is high putting downward pressure on the currency, the prescription is simple, to tighten monetary policy. By contrast, during period of upward pressure on the currency and lower inflation, this calls for looser monetary policy.

Table 3.1 Compatibility of the BBC and Inflation Targeting

INFLATION / EXCHANGE RATE	HIGHER (forecast) CPI higher than the targeted range	LOWER (forecast) CPI lower than the targeted range
APPRECIATION outside the exchange rate band	No action (A)	Ease Monetary Policy
DEPRECIATION outside the exchange rate band	Tighten Monetary Policy	No action (B)

In scenario A, currency appreciation can help to lower inflation, with a time lag in ordinary circumstances. If the appreciation is short-term in nature, say due to an external shocks, the shock is absorbed within the inflation-targeting framework provided that market participants believe that the framework is credible. Currency depreciation in scenario B will lead to higher inflation via an increase in import prices. In both situations, monetary policy might not have to respond since the shocks will tend to offset one another in terms of their effect on future inflation.

But it is important that the overall policy framework is designed to ensure that the exchange rate band and the inflation target are chosen so that they are compatible with economic fundamentals and the kind of shocks - both external and internal - likely to hit the economy. It is also critical for the authorities to understand the size and speed of pass-through from the exchange rate to prices. The existence of a band of fluctuation for the exchange rate around its central rate is also critical to limit currency speculation.

The intermediate exchange rate regimes, such as the BBC, require a sound macroeconomic policy framework underpinning them, i.e., sound monetary and fiscal policy, to limit speculative attacks on the currency. Inflation targeting is one measure that can provide a sound basis for monetary policy provided that the framework is appropriately designed.

Chapter 4.   Inflation Targeting in Asia: Case Studies

As discussed in the previous section, the crisis-hit countries in Asia, with the exception of Malaysia, switched to a floating exchange rate regime from a *de facto* dollar peg, with regulations on capital movements held to a minimum. Rapid depreciation of these currencies following the crisis in 1997 led to fears of inflation, though it was necessary at the time of the crisis to ensure adequate liquidity in the financial system. To stabilize inflation expectations, there was a need for a new anchor for monetary policy. Korea introduced inflation targeting in 1998, followed by Thailand and Indonesia in 2000, and the Philippines in January 2002. Table 4.1 details the inflation-targeting frameworks adopted by these countries and compares them to the established frameworks in the United Kingdom and New Zealand. The rest of this chapter looks at the case studies of inflation targeting in these four Asian countries.

Table 4.1 Basic Frameworks of Inflation Targeting in Asia (compared with advanced countries)

Country	Introduced in	Targeted Price Index	Target	Target Horizon
Korea (Bank of Korea; BOK)	April 1998	1998/99 Headline CPI	1998: 9%(+/-1%)	1 year
			1999: 3%(+/-1%)	
		2000- Core CPI (CPI excluding non-cereal agricultural products and petroleum products)	2000: 2.5%(+/-1%) 2001: 3%(+/-1%) 2002: 3%(+/-1%) 2003: 3%(+/-1%)	
Indonesia (Bank Indonesia; BI)	January 2000	CPI excluding the impact of the governments' price and incomes policy	2000: 3-5%	1 year
		Headline CPI	2001: 4-6% 2002: 9-10% 2003: 9 +/- 1%	
Thailand (Bank of Thailand; BOT)	May 2000	Core CPI (CPI excluding raw food and energy items)	0-3.5%	Indefinite (8 quarters ahead)
Philippines (Bangko Sentral ng Pilipinas; BSP)	January 2002	Headline CPI	2002: 5-6% and 2003: 4.5-5.5%	2 years
Current Frameworks of Selected Advanced Countries				
New Zealand	March 1999	Headline CPI	1-3%	Indefinite
United Kingdom	October 1992	RPIX (Retail Price Index excluding mortgage interest)	2.5%	Indefinite

Table 4.1 Basic Frameworks of Inflation Targeting in Asia (compared with advanced countries) (cont'd)

Country	Escape Clauses	Central Bank's Goal Independence: Target set by	Central Bank's Operational Independence	Central Bank's Institutional Independence: Appointment and dismissal of Governor
Korea (Bank of Korea; BOK)	1998: None 1999: natural disasters, tax reform 2000- None	Jointly set by Central Bank and Government	Two of 7 members of Monetary Policy Committee appointed by Government	Appointed by President following deliberation by State Council. Given guaranteed status (Article 18 BOK Act)
Indonesia (Bank Indonesia; BI)	None	Set by Central Bank (Article 10, Act No.23/1999 concerning Bank Indonesia)	No MPC member from Government. No interference by Government or any other external parties (Article 4, Act No. 23/1999).	Appointed by President, with approval from House of Representatives. No dismissal by President, however.
Thailand (Bank of Thailand; BOT)	None	Set by Central Bank		"The BOT Governor shall be appointed or removed from office by the Crown upon the recommendation of the Cabinet." (Section 19 BOT Act B.E. 2485 (AD1942))
Philippines (Bangko Sentral ng Pilipinas; BSP)	Volatility in the prices of unprocessed food, oil products, significant government policy changes in tax and subsidies, natural disasters	Jointly set by Central Bank and Government	One of 7 members of Monetary Board must be a Cabinet member (currently Secretary of Finance)	Appointed by President, but no dismissal.

Current Frameworks of Selected Advanced Countries

Country	Escape Clauses	Central Bank's Goal Independence: Target set by	Central Bank's Operational Independence	Central Bank's Institutional Independence: Appointment and dismissal of Governor
New Zealand	Unusual events	Jointly by Central Bank and Government	Governor decides monetary policy	Appointed by Treasurer on recommendation of Board of Directors
United Kingdom	None	Government	BOE Monetary Policy Committee decides monetary policy	Appointed by the Crown

Table 4.1 Basic Frameworks of Inflation Targeting in Asia (compared with advanced countries) (cont'd)

Country	Accountability of Target Misses	Publications and Accountability	Memorandum Items
Korea (Bank of Korea; BOK)	Public Explanation	Quarterly Bulletin; Monthly announcement of monetary policy stance; Minutes of Monetary Policy Committee	*The revised Bank of Korea Act (December, 1997) provides the BOK independence and inflation targeting framework. *Medium Term Target: 2.5%
Indonesia (Bank Indonesia; BI)		Quarterly Reports submitted to House; Monthly Review on Economic, Monetary and Banking	*Act No.23/1999 on Bank Indonesia (May, 1999) granted Bank Indonesia the status as an independent state institution. *Medium Term Target 2002-06: 6-7% committed
Thailand (Bank of Thailand; BOT)	Public Explanation	Quarterly Inflation Report including inflation projection (fan charts of 8 quarters ahead)	*Revision of BOT Act is being suspended.
Philippines (Bangko Sentral ng Pilipinas; BSP)	Issuance by Governor of an Open Letter to President	Quarterly Inflation Report; Highlights of Meeting of the Monetary Board	New Central Bank Act of 1993
Current Frameworks of Selected Advanced Countries			
New Zealand	Public explanation; Minister of Finance may ask for resignation of RBNZ Governor	Inflation Report including inflation projections	Revised Reserve Bank Act in 1989
United Kingdom	Issuance of open letter to the Minister of Finance	Inflation Report including inflation projections	Bank of England Act 1998

4.1 Korea

Korea was the first country in Asia to adopt inflation targeting after the currency crisis of 1997. It signed an agreement with the IMF for a standby credit arrangement in December 1997 and, responding to suggestions by the IMF, started to target the inflation rate in 1998.

Emerging from the crisis, Korea has embarked on structural reforms in a broad range of areas, including the financial system, corporate governance, labor market reforms, and development of a safety net. In the area of exchange rate policy, Korea abolished the daily band of exchange rate fluctuations in December 1997, thereby moving to a full-fledged currency float. In step with this regime shift, the authorities moved to increase foreign exchange reserves based on the plan, and the reserves reached 52.0 billion dollars at the end of 1998, well above the

pre-crisis level.[8] In the area of capital transaction, measures were implemented to liberalize acquisition of domestic corporations and transactions in the corporate bond market for foreign investors. In May 1998, the ceiling on equity investment for foreign investors was eliminated, and a ban on foreign direct investment in 45 business areas was lifted except in a few cases.

At the start of the crisis, the Bank of Korea (BOK) undertook a major tightening according to the IMF classical prescription for a currency crisis. At the same time, the Korean government decided to amend the BOK Act, bringing in major changes in the framework for monetary policy. The amended Act was officially announced on the last day of 1997, and came into effect in April 1998. It implemented two major changes: the BOK was given independence from the government, and inflation targeting was adopted under statutory provisions.

Article 1 of the amended Act outlines the mandate of the BOK as "pursuing price stability through the formulation and implementation of efficient monetary policy," thereby contributing to sound development of the national economy. Another provision states that, "The Bank of Korea shall set a price stability target every year in consultation with the Government" (Article 6, Section 1). Hence,

the framework for inflation targeting was clearly articulated in the Act, in contrast to many other inflation-targeting countries where the framework for inflation targeting is not on the statute books even though the central bank is charged with the task of pursuing price stability. The BOK sets the target inflation rate at the end of the year for the coming year in consultation with the government (Ministry of Finance and Economy (MOFE)), and the Monetary Policy Committee (MPC) decides how to implement the target.

The targeted average annual CPI inflation rate was 9 per cent in 1998, and 3 per cent in 1999, with a one per cent band on either side. The actual average annual inflation was 7.5 per cent in 1998 and 0.8 per cent in 1999, well below the target level (Figure 4.1, Figure 4.2). In 1998, despite major monetary loosening, there was little increase in bank lending reflecting a credit crunch caused by a large amount of non-performing loans resulting from the economic downturn in the wake of the currency crisis. This mitigated the inflationary pressure from the sharp increase in import prices as a result of the depreciation of the won and an increase in some food prices due to unfavorable harvests, so that inflation was actually below target. Deflationary pressures continued in 1999, and inflation again turned out lower than expected despite a sharp rebound of the economy.

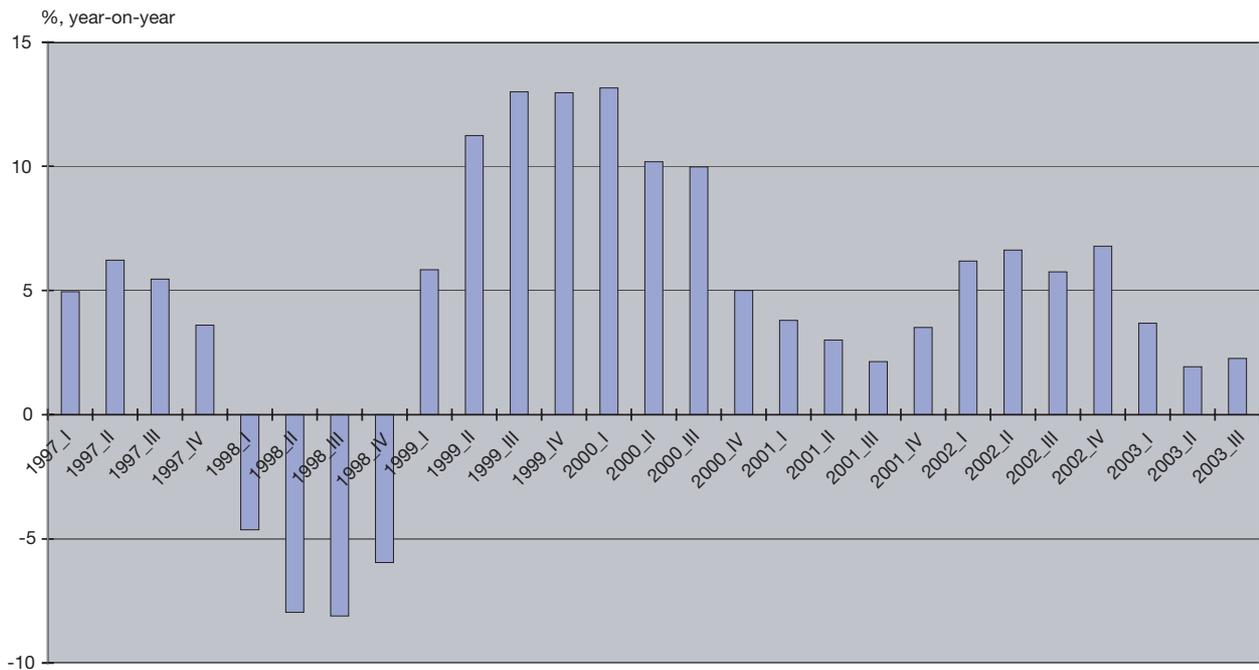
[8]   Later foreign reserves rose to $102.8 billion (worth 8.7 months of import amount) at the end of 2001.

Figure 4.1 Inflation Performance and Targets in Korea
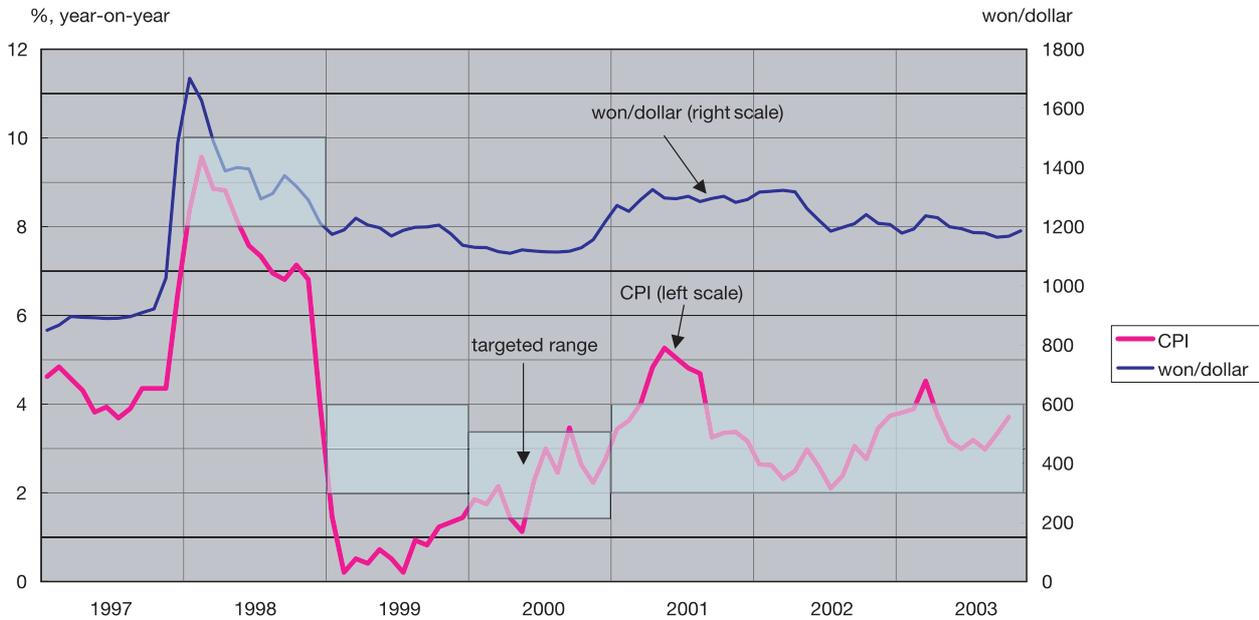
Source: IMF

Figure 4.2 Real GDP Growth Rate in Korea

Source: IMF

Inflation targeting in Korea was introduced with only a few months preparation. Since the central bank had little time to undertake extensive research on the kind of inflation targeting framework to adopt, they drew heavily on the experience of New Zealand. Hence, the implementation process has been far from smooth, involving a great deal of learning. After two years of experience of inflation targeting, the BOK and the Government replaced the headline inflation rate with the core inflation rate as the target inflation indicator in 2000. This is defined as 'CPI excluding non-grain agricultural products and petroleum products' (the headline CPI figure is more easily influenced by fluctuations in the price of items such as food, which are beyond the central bank's control). The target set for the average annual core inflation rate was 2.5 per cent in 2000, and 3 per cent in 2001 and 2002, with a one per cent band on either side. Inflation outturns were 1.8% in 2000 and within the target band, and 4.2 per cent in 2001, 0.2 per cent above the upper bound of the band. The BOK accounted for the deviation in 2001 by loose monetary policy extending longer than necessary, and price hikes in public utilities. For the year 2003, the BOK, in consultation with the government, set the core inflation rate target at 3 plus/minus 1 per cent.

The BOK sets an inflation target for the medium term as well as annual targets. In 2002, the medium term target was 2.5 per cent, lower than the average annual inflation of 3 per cent. The medium-term target is intended to stabilizing inflation expectations by signaling to the market an intention to bring down the future inflation rate to 2.5 per cent, since the statutory requirement of annual revision of the target tends to destabilize the market expectation as the end of the year draws near. In 2003, the medium term inflation target was widened to the range of 2.5 - 3.5 per cent. However, what is meant by 'medium term', is not clear, and its consistency with annual inflation targets is ambiguous.

One outstanding issue is the degree of independence of the central bank. The BOK Act significantly increased the Bank's independence in terms of instrument, but the following two problems remain. First, two of the seven members of the MPC are appointed based on recommendations by the Minister of Finance and Economy and the Chairman of the Financial Supervisory Commission. This increases the likelihood that former bureaucrats with influence in the government are appointed. These two members also attend MPC meetings and participate in decision-making in an individual capacity. They have security in their position, as they cannot be dismissed during the four-year term. As the Vice Minister of Finance and Economy attends the MPC meetings, the government has an opportunity to express its opinion (Article 91, the Bank of Korea Act). The fact that two out of seven members are recommended by the government could lead to suspicion among market participants and observers of the Korean economy that committee members are under the strong influence of the government undermining the independence of the central bank. The problem is not that these individuals are nominated by the Ministry - the system could work if qualified persons, rather than bureaucrats, were nominated so we recommend that the qualification for the Committee members is clarified.

Second, according to the BOK Act, the Minister of Finance and Economy may ask for reconsideration of any decisions made by the MPC, if, in his judgment, they "conflict with the Government's economic policy" and thus are not desirable. If, as the result of reconsideration, the committee endorses the initial decision with a majority vote of five members or more, the President of Korea has the power to decide whether the decisions of the committee are acceptable (Article 92, Section 1 and 2). Since the President of Korea is the ultimate decision-making body in the executive branch of the government, this is problematic from

the point of view of independence of the BOK. The Bank of Japan Act has a similar provision, but the committee can override the government request, so that independence is stronger. In practice, this provision has not yet been triggered. Article 92, Section 3 sets forth that where the Minister of Finance and Economy requests reconsideration of MPC decisions, he has to outline the grounds for such a request. This should act as a constraint on an arbitrary invocation of this provision, since if it is invoked without good economic grounds, the credibility of the monetary policy framework would suffer.

With regard to target design, the current central target rate of three per cent seems appropriate. It could be argued that in the face of an ongoing process of structural adjustment, some moderate inflation would help to stimulate private investment and encourage structural shift in the corporate sector. However, the band of fluctuation of one per cent either side of the central target could be criticised for being too narrow despite the fact that there have been few serious misses. (Over the four years since inflation targeting was introduced, inflation outturns were below the target range in 1998 and 1999, and above it - though only by 0.2 per cent - in 2001). There are two reasons for a wider band. First, the Korean economy is highly open, as evidenced by an export-GDP ratio of 38 per cent and the import-GDP ratio of 35 per cent and, consequently, exchange rate fluctuations have a large effect on the economy and especially prices. Second, the transmission mechanism of monetary policy is not stable given the degree and speed of changes in the structure of industry and trade. Since the currency crisis in 1997, major changes have been implemented in the financial system, including realignment of chaebols and the rebuilding of systems of corporate finance. Under these circumstances, it is not easy for the monetary authorities to quantify the monetary transmission mechanism, and missing targets risks damaging the credibility of the inflation target.

The horizon of the target, currently one year, is also an issue. In many countries, it is estimated that it takes a year or more for monetary policy changes to have an effect on the economy. In line with this, according to analysis by the BOK, a change in the call rate starts to affect prices in around 7 to 8 months and its effects continue for up to 2 years (Oh, 1999). Thus, a one-year horizon for the inflation target would seem to be too short.

To sum up, since its adoption in 1998, inflation targeting has played a positive role in stabilizing the Korean economy and providing a basis for economic recovery following the Asian Financial Crisis. In particular, it has been implemented through a firm commitment to independence of the BOK. However, improvements are necessary if inflation targeting is to be firmly established in the system and to increase the efficacy of policy. In particular, strengthening the independence of the BOK is essential to increase the credibility of the framework. In addition, we think that the range for the inflation target could be widened, so that there will be fewer times when the target is missed, and that the horizon of the target should be longer, say two years with a rolling forecasting period.

4.2 Indonesia

Indonesia introduced inflation-targeting in January 2000. A new central bank law became effective in May 1999, which clearly specifies the objective of monetary policy as stable prices, and gives the Bank Indonesia (BI) independence. The Indonesian system is not yet a 'full-fledged' inflation-targeting framework in the mold of the New Zealand system. For example, it lacks a strict binding nature which could be interpreted as a lower degree of commitment and less than strict accountability when the target is missed. The BI seems, however, to be in the process of implementing a fully-fledged framework.

Before the 1997 currency crisis in Indonesia, multiple objectives of monetary policy were pursued. The main anchor of monetary policy was the nominal exchange rate with a pre-announced crawling band vis-à-vis the dollar and using base money as an operational instrument. With an open capital account and large, volatile capital flows, the policy of keeping the exchange rate within a relatively narrow band led to tremendous challenges, while the target central rate was gradually devalued in line with inflation differentials. During the currency crisis in July 1997, speculative pressures in the money and foreign exchange markets increased, which eventually forced the authorities to allow the rupiah to float in August 1997. The rupiah dramatically depreciated after November when the rift between President Suharto and the IMF became apparent. The crisis resulted in a major economic downturn combined with a political crisis and a large-scale collapse of the banking system in 1998.

In the aftermath of the crisis, the following three conditions were imposed on the monetary authorities under the IMF program: a freely floating exchange rate, the introduction of an inflation targeting framework, and restructuring of the banking sector. These conditions are interrelated, though they sometimes conflict with each other as will be discussed later. The IMF was concerned about inflationary pressures arising from a sharp depreciation of the rupiah on the one hand, at one point down to one sixth of the pre-crisis level, and deflationary pressures coming from a severe recession, on the other.

The authorities provided ample liquidity to troubled banks and, at the same time, changed the monetary policy framework by introducing a new central banking law in May 1999. The new law set out various changes including the following two. First, it clearly stated that the sole objective of monetary policy was to pursue and maintain stability of the value of the rupiah. "The value of

the rupiah" could mean both price stability and exchange rate stability given the close link between movements in exchange rate and in prices. Second, the new law granted the BI full independence. Article 4 in the new law makes it clear that any interference by the Government and any other external parties is prohibited. It is worth noting that the BI is given goal independence as well as instrument independence. Article 10 clearly states that the target shall be set by the central bank, though, in practice, the BI and the government work closely to exchange views on the following year's target and its assumptions.

In January 2000, in accordance with the enactment of the new central banking law, the BI set the inflation target for the year 2000 as 3-5 per cent, measured by the CPI excluding administered prices like electricity prices and civil servants' salaries. For the year 2001, the target was set at 4-6 per cent. The targets for both years were missed partly because of unexpected depreciation of the rupiah. The BI tightened monetary policy to contain inflationary pressures, though the room for tightening was not large because of the severity of the economic downturn. In 2002, the BI switched to the headline CPI as the inflation target because it was more easily recognized by the general public. A 9-10 per cent target was set for the year 2002, and the BI announced its medium-term target as 6-7 per cent for 2002-2006. In 2002, the actual inflation rate was 10 per cent. The BI set the inflation target for the year 2003 at 9 per cent with a deviation of plus/minus 1 per cent, while the medium- to long-term target remained unchanged.

The IMF program specifies the monetary base as an instrument of monetary policy. It appears that the BI use the monetary base as an intermediate target consistent with the targeted inflation, though actual monetary base was below target in 2002 and a change in the operational target is now under consideration.

Examining the Indonesian case raises three issues. The first is whether the exchange rate must be managed to attain the inflation target. A rapid depreciation of the rupiah has implications for the achievability of the inflation target, and smoothing operations, allowed within the floating exchange rate regime, are not always enough to limit their impact on the inflation rate. Research on modelling the inflation rate in Indonesia suggests that the exchange rate as well as foreign inflation rates are key influences, and that, while base money growth is statistically significant, it has a smaller effect on headline CPI (Ramakrishnan and Vamvakidis, 2002). Furthermore, the Indonesian foreign exchange market (rupiah/dollar) is so small (and smaller than before the 1997 crisis) that movements tend to be quite volatile. Extreme movements in the exchange rate are related to a high degree of capital mobility, therefore a managed exchange rate, with larger interventions to stabilize the rupiah, could be justified to limit speculative attacks.

Figure 4.3 Inflation Performance and Targets in Indonesia

Source: IMF
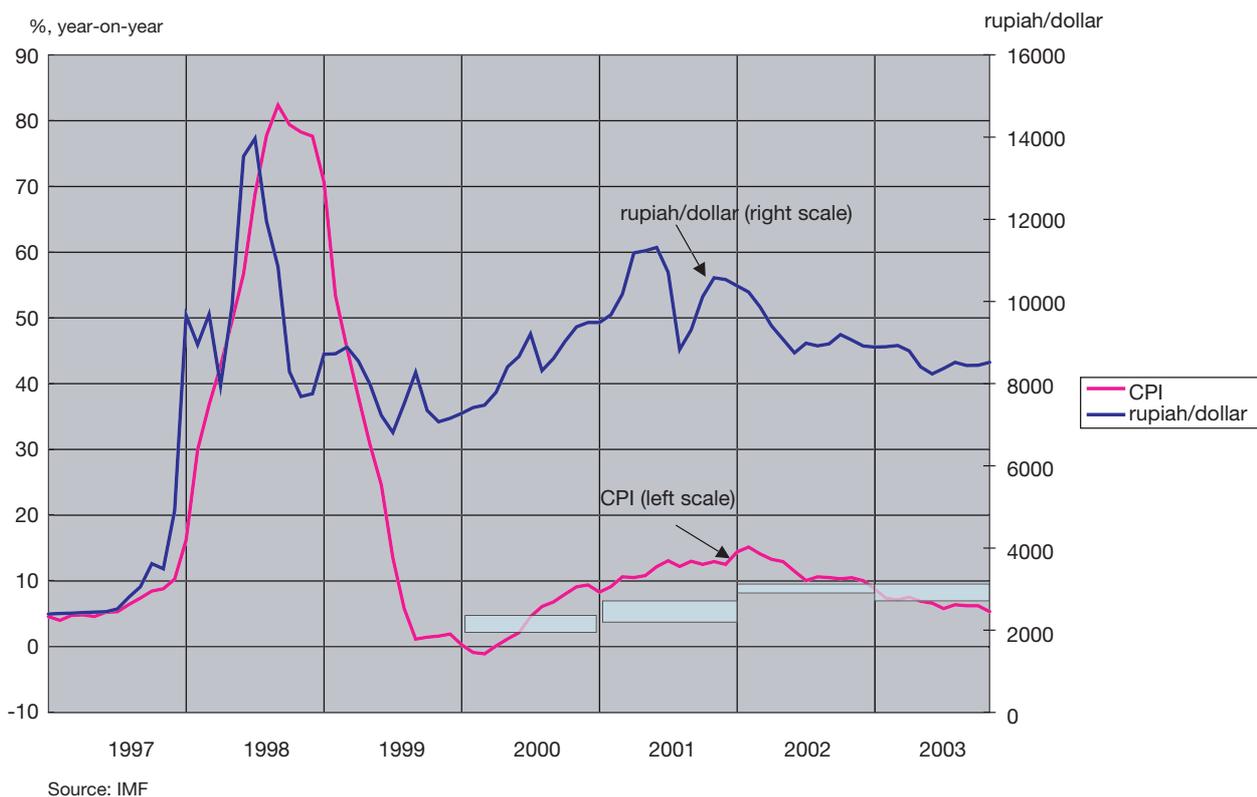
Figure 4.4 Real GDP Growth Rate in Indonesia

%, year-on-year
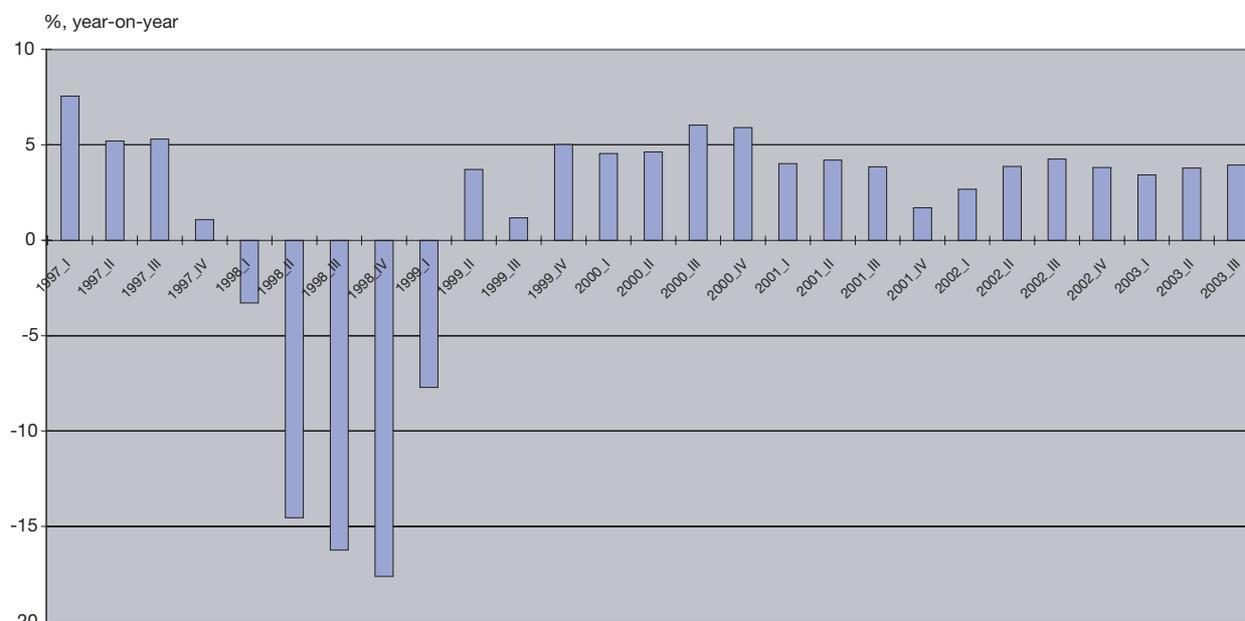
Source: Data Stream

A second issue concerns which operational instrument(s) should be used to achieve the inflation target, and how the central bank should communicate policy to market participants. Inflation-targeters in advanced countries usually conduct their monetary policies via indirect market measures, e.g., an operation in the call market, rather than by direct means. But in developing countries, money and bond markets tend to be relatively thin. In Indonesia, the main policy tools are open market operations of the SBI (securities issued by the BI), a "rupiah intervention" rate and "foreign exchange sterilization". Further consideration of other instruments, for example an overnight call rate, is needed to pursue more effective monetary policy.

A third issue is related to how monetary policy should respond to banking sector problems. The BI provided ample liquidity to avoid a total collapse of the financial system during the crisis period. Adopting an inflation-targeting framework was expected to function as an exit strategy and prevent a repeat of the period of hyperinflation in Indonesia in the 1960s (Alamsyah *et al*, 2001). Liquidity, however, was badly needed in 2000 and 2001, which resulted in a failure to achieve the announced inflation target in both years. Moreover, the transmission mechanism of monetary policy has changed since the crisis. After the crisis, the effect of policy rate changes on bank rates was weaker than in the pre-crisis period (BI, 2002). In general, the direction and the degree of monetary transmission has become more uncertain following the banking crisis, and tracing the monetary transmission mechanism is now more difficult. This has also called into question the wisdom of introducing inflation targeting at the height of a banking sector crisis.

Two observations about the details of the inflation targeting framework in Indonesia are important. First, the one-year horizon may be too short, because the policy lags tend to extend for four to eight quarters in the Indonesian economy. It could also be argued that the range for the inflation target, namely a one per cent band (9-10 %) in 2002, is too narrow. The target for 2003, 9 per cent with

the 1% tolerance on each side, is a little wider, but the size of exchange rate pass-through and recent outturns for inflation question whether the current range is wide enough. Second, the current targeted level of 9 per cent is too high from the viewpoint of maintaining export competitiveness, and persistently high inflation rates have eroded most of the competitive advantage from sharp currency depreciation in late 1997 and throughout 1998. The BI estimates the size of the impact on the overall inflation of the government plans regarding administered prices, including cutting subsidies for fuel, at 3.0 per cent in 2003. Even taking these into account, the 9 per cent target seems too high, and the medium-term targeted inflation rate and also needs to be reconsidered. A lower targeted rate would be worth considering in order to promote sustained economic growth in Indonesia.

At the time of writing, independence and accountability are issues under heavy discussion in Indonesia. While the BI law underpins the independence of the BI, some politicians are arguing that it has "too much independence". In response to these criticisms, the BI has made efforts to enhance its transparency to a level acceptable to market participants, and many now regard it as one of the most transparent government organizations in Indonesia. Nevertheless, moves towards a full-fledged inflation-targeting framework would strengthen the accountability of Indonesia's monetary policy conduct.

To sum up, in order to promote sustained economic growth through greater export competitiveness, stability of the real effective exchange rate and the domestic inflation rate is crucial. The inflation-targeting framework in Indonesia could be improved by lowering the targeted central inflation rate with a ceiling of 5 per cent for the medium-term inflation target.

4.3 Thailand

The Bank of Thailand (BOT) switched its monetary policy framework from monetary targeting to inflation targeting in May 2000, two years after the move from a fixed to a floating exchange rate. It was hoped that the introduction of inflation targeting would provide a nominal anchor and enhance the transparency and efficiency of monetary policy. In April 2000, the BOT established a Monetary Policy Board, consisting of BOT executives and outside experts, which was replaced in July 2001 by a Monetary Policy Committee (MPC) comprising eight BOT executives and two external advisers.

The design of the Thai inflation-targeting framework appears to have been carefully tailored. The BOT targets a quarterly core inflation rate, defined as headline inflation excluding raw food and energy items, of 0 to 3.5 per cent. The core CPI is calculated by a separate government organization, the Ministry of Commerce, to avoid any (allegation of) manipulation by the BOT and retains about 75 per cent of the price information in the CPI basket and seems to be sufficient proxy of underlying inflation. The target horizon was set for two years, and rolled over to an indefinite period, i.e., the BOT must always keep core inflation eight quarters ahead within the target band. Inflation Reports are published quarterly, providing a clear forward-looking framework for economic and inflation forecasting and, in particular, to show risk factors. The forecast is presented as a fan chart over an eight quarter horizon and with a probability distribution around this. The Inflation Report also helps to explain MPC decisions to the public. The inflation forecast is recognized as an intermediate target in the monetary policy framework of the BOT. The structure of the BOT macroeconomic model incorporating inflation expectations, which is used for the inflation forecast, is also published. The careful design and practice of the monetary policy framework has benefitted from the technical

assistance from, and research by, some of the "advanced" inflation-targeting central banks, in particular in the UK, Sweden, Canada, Australia and New Zealand. The core inflation target range of 0-3.5% over the next two years was maintained in January 2003, and the BOT forecasts that the core inflation rate in 2003 will be in the range of 0. 5-1.5 per cent in 2003, and 1-2 per cent in 2004.

The monetary policy instrument is the 14-day repo rate. With regard to exchange rate fluctuations, the BOT estimates that a 10 per cent depreciation of the baht against the US dollar has the effect of increasing the core inflation rate by around a 0.9 per cent (BOT, 2002). Some BOT officials say that BOT decisions to sterilize take into account the impact of changes in money balances on the inflation target but that the exchange rate is determined by the market. An increase in the

number of non-performing loans (NPLs), accumulated in the aftermath of the crisis, complicate the transmission mechanism of monetary policy, though the amount has been steadily declining.[9]

Inflation performance has been very good so far (Figure 4.5), and core inflation has been within its targeted range in all quarters. This achievement seems to be accompanied with little, if any, sacrifice of output, even though the targeted inflation rate is low. It could be argued that the timing of the introduction of inflation targeting was appropriate in that the inflation rate was already quite low, compared to Indonesia, even in the wake of the currency crisis, as inflationary pressures arising from depreciation of the Baht were offset by disinflation from an economic recession.

Figure 4.5 Inflation Performance and Targets in Thailand

Source: IMF, Bank of Thailand
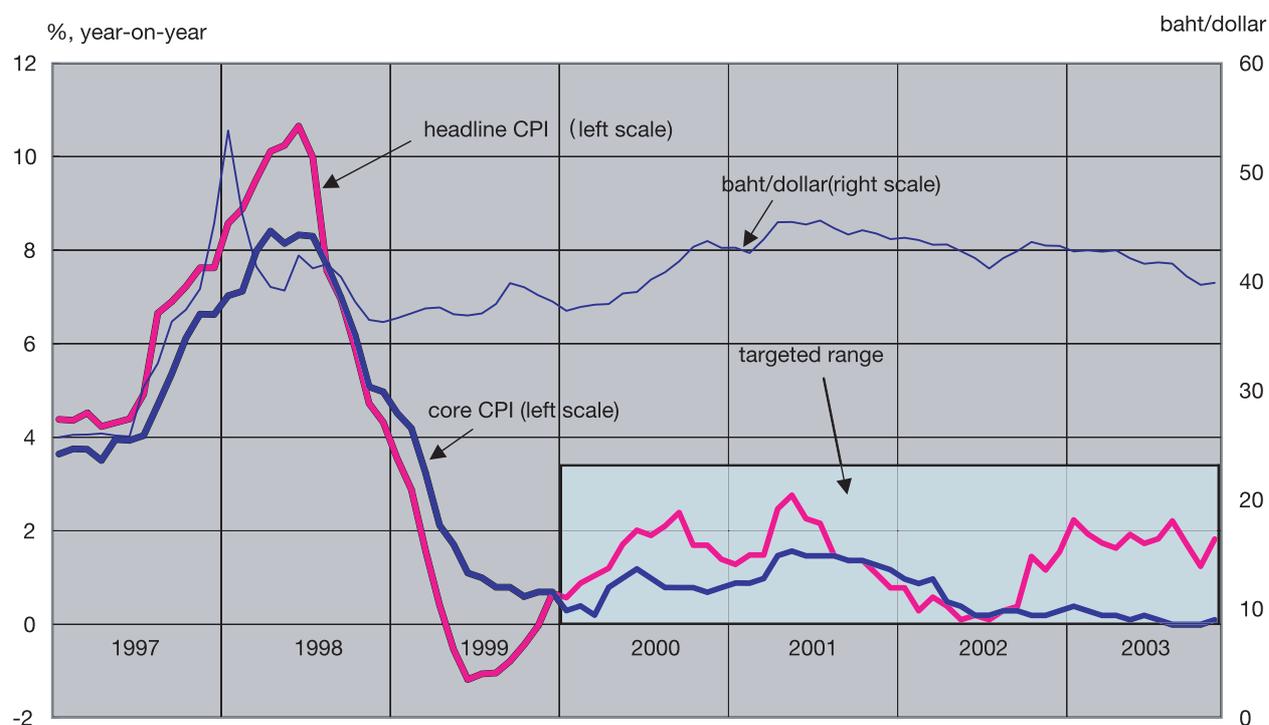
[9] In response to the increase in NPLs, Thailand first of all established an Asset Management Company for each bank, but this had no significant effect. However, the number of NPLs fell dramatically when the Thai Asset Management Corporation (TAMC), a government entity, was established in 2002 and NPLs were bought out, with limited recourse clauses, from all banks. See Ito and Hashimoto (2002b) for details of bank restructuring.

Figure 4.6 Real GDP Growth Rate in Thailand
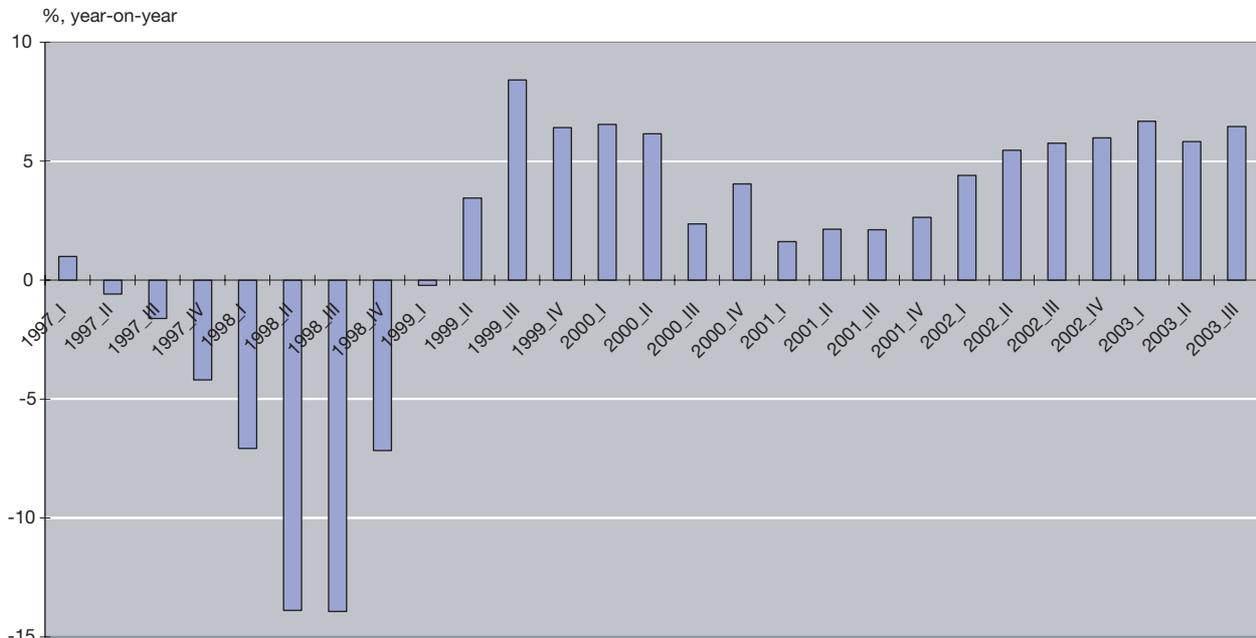
Source: IMF

However, a crucial issue is yet to be solved concerning the independence of the BOT. The present BOT Act was established in 1942, when the BOT was established and separated from the Ministry of Finance during wartime.[10] It clearly states that the BOT has no independence as an institution: "The general supervision of the affairs of the Bank of Thailand is vested in the Minister" (of Finance) (Section 14, Bank of Thailand Act), and that "The Governor and the Deputy-Governor shall be appointed or removed from office by the Crown upon the recommendation of the Cabinet." (Section 19, BOT Act). This lack of independence in terms of the operation and goal of monetary policy could undermine the credibility of the new framework at some point in the future. At present the framework appears to be working well, however, credibility could be lost if inflation rises above its target level

and this is perceived to be due to government interference. The potential lack of credibility also poses significant risks in terms of the stability of financial markets. Independence of the central bank is one of the key components of a successful inflation-targeting framework. In recognition of this, a new BOT Act, which includes provisions for legal independence, is under consideration and expected to be passed in 2003.[11]

In conclusion, the inflation-targeting framework in Thailand is fairly well designed though it could be argued that the floor of the target range of zero per cent is perhaps too low. Bearing in mind the experience of Japan and the difficulties in dealing with deflation, we suggest that the floor is raised from zero to one per cent at an appropriate time in order to avoid deflation in Thailand.

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[10]   Before 1942, the National Banking Bureau attached to the Ministry of Finance handled central banking activities in Thailand.

[11]   The IMF Executive Board also repeatedly pointed out that "the effectiveness of monetary policy would be strengthened by early passage of the revised BOT and Currency Acts, to enhance the operational independence of the central bank" (Article IV consultation concluded in August 2002).

4.4 Philippines

The Philippines formally introduced an inflation-targeting framework in January 2002, after two years of preparation. The decision was taken as early as January 2000 by the Monetary Board, the policymaking body of the central bank, the Bangko Sentral ng Philipinas (BSP). A considerable amount of preparatory work had been done prior to the introduction of an inflation target. The BSP had been given an independent status by the Central Bank Act of 1993. (Before the shift to inflation targeting, the BSP conducted monetary policy focusing on monetary aggregates).

The design of the new framework was relatively well considered, benefitting from the lessons of other countries' experience. A prominent feature is that the inflation target has a two-year horizon and consists of a set of two targets for two years, taking into account policy lags. The target was 5 - 6 per cent for the year 2002 and 4.5 - 5.5 per cent for 2003, measured by the headline CPI. The targets are jointly set by the BSP and the government.[12] Various monetary policy instruments are used, including the rediscount rate and reserve requirement.

Although the Philippine inflation-targeting framework is well designed, it has been criticised by the IMF Executive Board which "noted that the limited use of escape clauses from the inflation target will also be important to the credibility of the monetary framework" in the conclusion to the Article 4 consultation exercise with the Philippines in 2001. The current escape clauses are as follows: (a) volatility in the prices of unprocessed food; (b) volatility in the prices of oil products; (c) significant government policy changes that directly affect prices such as changes in the tax structure,

incentives and subsidies; and (d) natural factors affecting the major part of the economy. In developing countries like the Philippines, some flexibility, through escape clauses, to respond to external shocks helps to enhance the credibility of the inflation-targeting framework itself. In the Philippine case, these categories seem to be appropriately defined, taking into account the nature of the economy such as it is vulnerability to external shocks and the weather, and are expected to contribute to the credibility of the framework. We differ from the IMF Executive Board in judging these escape clauses to be appropriate.

It is too early to evaluate the performance of the new framework since it has only been in operation for such a short time. Just before the introduction of the inflation target, the inflation rate had declined to around 4 per cent at the end of 2001. The target for 2002 was set at 5-6 per cent a year, and the actual average CPI figure in the year 2002 was recorded at 3.1 per cent, partly due to lower food and energy prices. This is almost two percentage points lower than the inflation target floor for the year. The unexpected disinflation was accompanied by strong GDP growth of over 3 per cent. It seems that the inflation target was more than just achieved in the first year, suggesting perhaps that the target should be reset. Estimates by the BSP show that core inflation was 3.8 per cent in 2002, significantly down from 6.5 per cent in 2001. For 2003, the Philippines government set a target of 4.5-5.5 per cent in January 2003.

While current inflation remains below the target, the Monetary Board has maintained the same policy interest rate since March 2002, in response to future inflationary pressures over the policy horizon. There are uncertainties surrounding a number of factors, including the full impact of the

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[12] The Development Budget and Coordination Committee, consisting of the Department of Finance, the Department of Budget and Management, the National Economic and Development Authority and the Office of the President as well as the BSP, set these targets.

El Nino weather disturbance on agricultural crop production, a possible increase in world oil prices, deferred adjustments in utility charges, as well as financial market concerns over the fiscal deficit and peso depreciation in 2002. The fact that the BSP is taking into account future inflationary pressures is evidence of a forward-looking approach that is an important feature of a successful inflation-targeting framework.

Summing up, the inflation-targeting framework in the Philippines is well constructed, though there was a significant undershoot of the target in the first year. Further research on current disinflationary pressures is necessary to consider whether the current targets are appropriate. In order to lock in price stability, we recommend that the target range be adjusted downward to, a 2-4 per cent range.

**Figure 4.7 Inflation Performance and Targets in the Philippines**
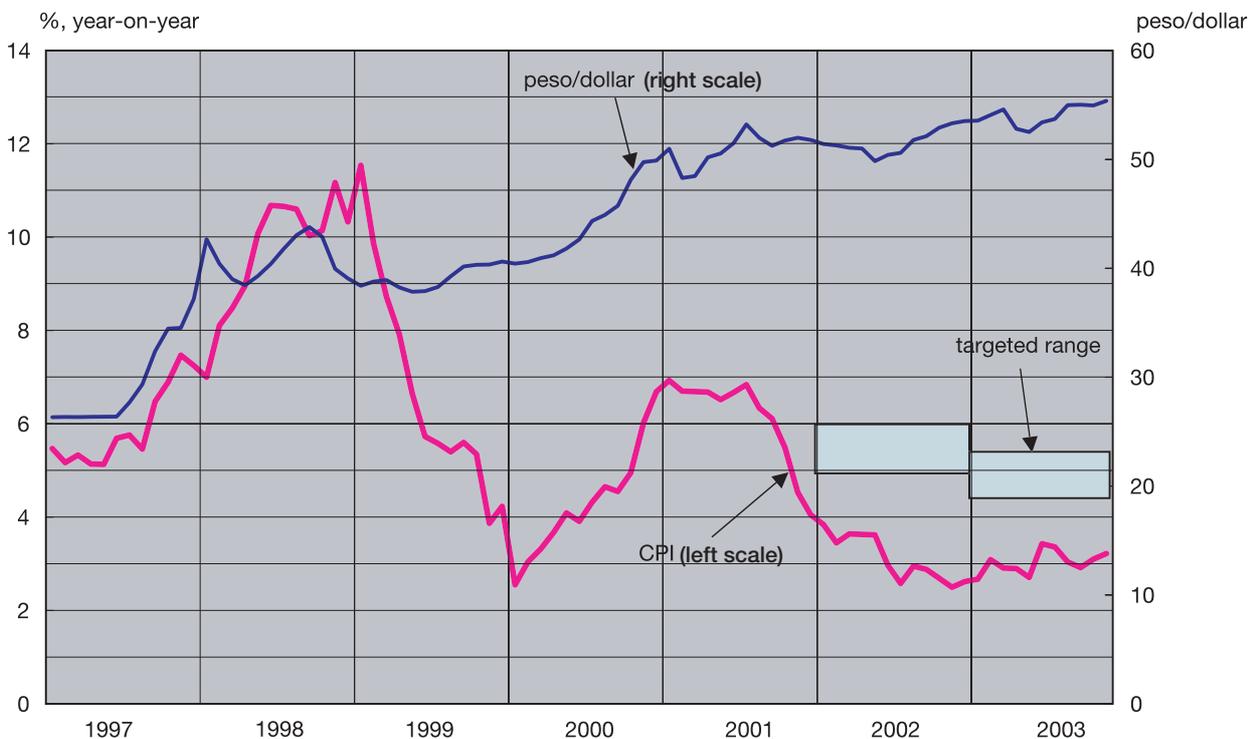
Source: IMF

4.5 Comparisons with advanced countries

The above observations on the inflation-targeting frameworks in four Asian countries, Korea, Indonesia, Thailand, and the Philippines, and comparisons with other inflation-targeting countries reveal major challenges on the following two fronts: the issue of central bank independence and the overall design of the framework.

First, in Thailand and, to a lesser degree, Korea, the level of central bank independence is inadequate especially when compared with that in other countries. The lack of institutional independence of the Bank of Thailand poses a risk for the credibility of the framework in place. In the Korean case, the government retains power over some of the institutional and operational aspects of monetary policy, and the Bank of Korea is not granted full institutional independence. Legal

Figure 4.8 Real GDP Growth Rate in the Philippines

%, year-on-year

Source: Data Stream
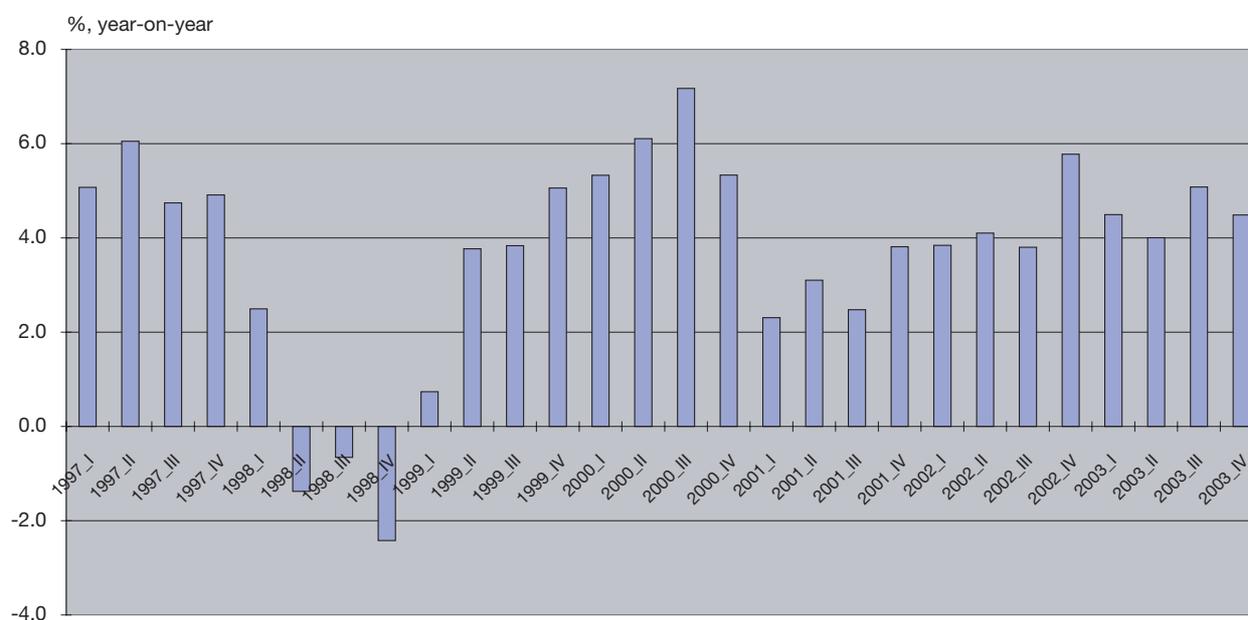
changes in central banking law in Thailand and Korea would help to strengthen central bank independence and thereby improve the efficacy of the framework.

Second, some improvements could be made in terms of the choice of target and policy horizons. In the Korean and Indonesian cases, however, their target horizon of one year is deemed too short given the long lags before changes in monetary policy affect the economy. Even in the transitional phase just after introducing inflation targeting, a set of one-year targets for several years would be more useful in stabilizing inflation expectations as well as improving monetary policy efficacy. In Thailand, the target floor of zero per cent is too low given the likely upward CPI bias and the risks of deflation, though the target has been attained so far. The target ranges are also too narrow, with the possible exception of Thailand. Achievability of the target is one of the key factors for successful inflation targeting. In this regard, a 1-4 per cent target or a 2-5 per cent target might be a good medium-term reference for the Asian inflation

targeters, though the target should be tailor-made for each country, taking into account economic conditions.

Improvements on these two fronts - central bank independence and the design of target range and horizon - would promote more credible frameworks in the Asian countries considered here. Asian central banks can learn from each other and from advanced countries in perfecting their inflation-targeting frameworks.

4.6 Benefits and challenges

Notwithstanding the above issues, the introduction of inflation targeting has contributed to economic recovery in these four Asian countries, partly by stabilizing inflation expectations. Although there have been fewer episodes of hyperinflation in these countries, in contrast to the experiences of Latin American countries, stabilizing inflation expectations has become critical in the current environment. The main reason for this is that these countries have shifted from a pegged exchange

rate to a managed float, and increasing global financial integration and capital flows presents challenges in terms of maintaining the stability of currency in the future. One potential benefit of inflation targeting is that it can facilitate trade and investment by reducing uncertainty about future inflation and the volatility of aggregate demand and output, but this will also depend on exchange rate stability.

The introduction of inflation targeting in these four countries has served to promote sound monetary policy by enhancing the transparency and accountability of monetary policy decision making. It has clarified the role of monetary policy, i.e., maintaining price stability, in the macroeconomic management in these countries. The publication and presentation of an inflation report, and improved communication with financial markets with regard to policy decisions has increased the credibility of these countries commitment to low inflation.

Overall, we conclude that inflation targeting in the Asian countries has increased the effectiveness of monetary policy. A numerical target, rather than a vague concept of 'price stability', makes the goal of monetary policy clear, making it easier to hold the central bank accountable for its decisions. Further improvements, however, could be made in some countries, as discussed earlier, to increase central bank independence. In addition, there are some common challenges that the Asian inflation-targeters face in implementing new policy frameworks. These are how to take account of exchange rate fluctuations, avoiding abrupt and destabilising capital flows, and to understand the monetary policy transmission mechanism, especially given the increase in the number of non-performing loans as a result of the Asian Financial Crisis.

The exchange rates in these countries have fluctuated widely in the period before and after inflation targeting was introduced. Some fluctuation in the exchange rate vis-à-vis the US dollar is desirable to stabilize the real effective exchange rate and maintain the competitiveness of exports, but excessive fluctuations are damaging to the real economy. These fluctuations reflect large and volatile capital flows as well as current account imbalances. The relatively small size of foreign exchange markets in these economies makes the exchange rate vulnerable to external shocks and pass-through from changes in the exchange rate to core inflation rates can be significant. This could justify some currency intervention to keep inflation on target in the event of a shock. While an inflation-targeting framework is not a panacea for avoiding abrupt and sudden changes in the volume of capital flows, it could help to stabilize capital flows by stabilizing inflation expectations.

Another common problem facing these countries is the large number of non-performing loans in the banking system which has disrupted the monetary transmission mechanism. In order to ease the pain associated with quick disposal of these, the Asian inflation targeters have maintained a relatively loose monetary policy stance and provided ample liquidity. One lesson is that the framework for monetary policy requires flexibility to accommodate the need of liquidity in the financial system in the event of a shock to the banking sector which raises systemic risk. In this event, it may be necessary to have proper escape clauses for a central bank operating in an environment where the efficacy of monetary policy is reduced.

Chapter 5. Lessons from Japan

5.1 Japan's experience of deflation

The Japanese experience of deflation offers some important lessons for countries with inflation targeting frameworks. The Japanese situation after 1999 shows that conventional monetary policy becomes rather ineffective once the nominal interest rate declines to zero in a deflationary environment. Thus, it is important for countries aiming for low inflation to ensure that the inflation rate does not fall below zero for a sustained period. Asian countries need to bear this in mind when designing and implementing inflation targeting. There is perhaps less risk of deflation in these countries because of their fast rate of growth and stability of the nominal exchange rate vis-à-vis the US dollar, nevertheless, an excessively tight monetary policy based on attempts to target a very low rate of inflation could become counter-productive.

The Japanese economy has experienced deflation -that is, a consecutive fall in consumer prices in general - since 1998. The GDP deflator has been declining since 1995. Monetary policy was gradually eased and the short-term interest rate hit zero in the spring of 1999. The rate of deflation accelerated in 2001, reaching about minus 1 per cent per annum. Since the nominal interest rate cannot be negative, conventional monetary policy has hit its limit in terms of effectiveness with the policy of keeping interest rate at zero per cent (the Zero Interest Rate Policy (ZIRP)) and is powerless in dealing with the deflation problem in Japan. As the rate of deflation has accelerated, the real interest rate has increased thereby discouraging investment which has, in turn, increased deflationary pressures - taking the economy into a deflationary spiral.

Figure 5.1 CPI Inflation in Japan (excl fresh food, VAT)
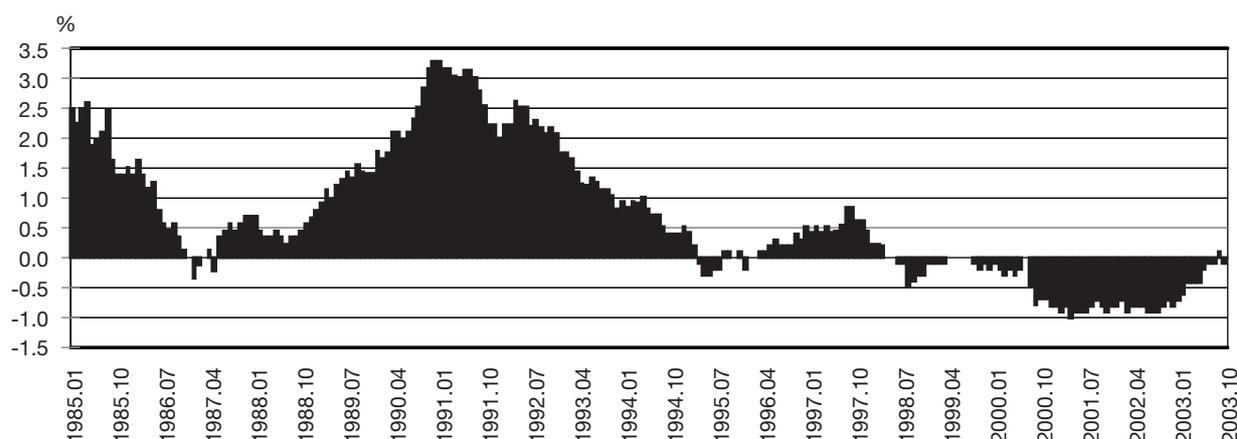
Figure 5.2 Real GDP Growth Rate in Japan

%, year-on-year
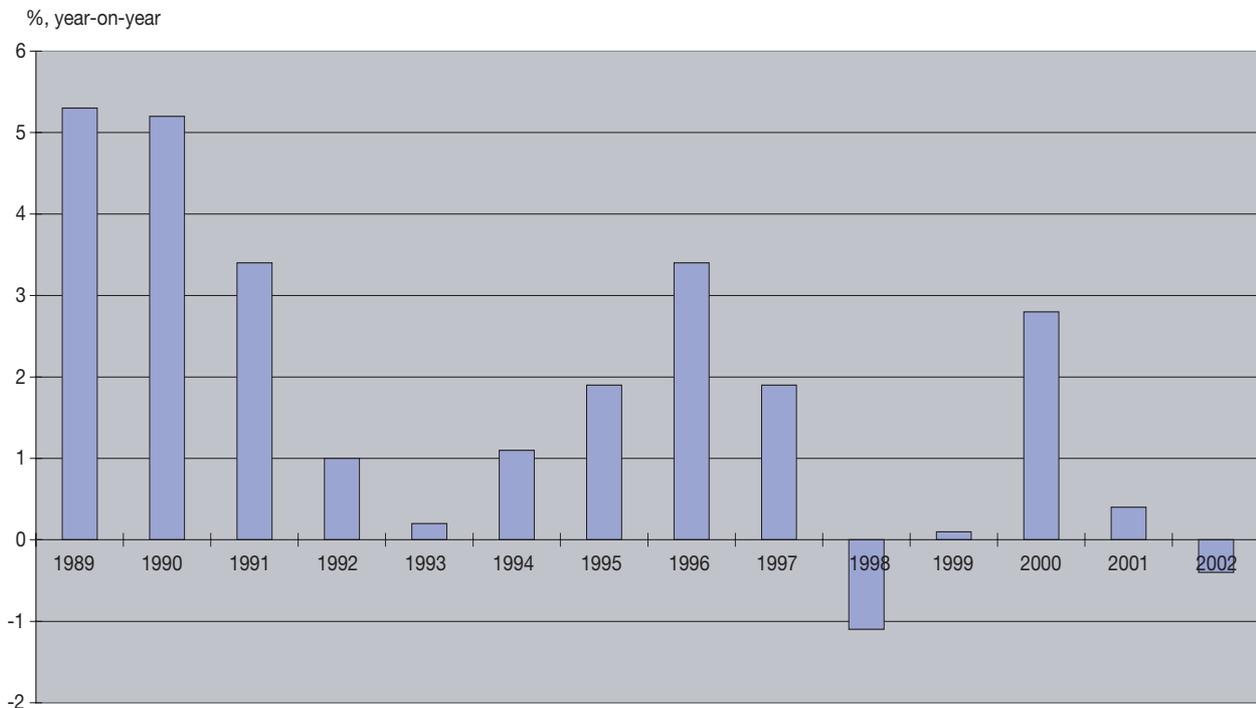
Source: Cabinet Office

It is worth briefly reviewing how Japan became trapped in this deflationary spiral? A textbook response to an economy caught in a liquidity trap is to expand fiscal policy. That was exactly what Japan did from 1992 to 2000, with larger and larger fiscal programs after 1995. During the low growth period after 1992 - known as 'the lost decade' - the Japanese government adopted eleven emergency economic packages, totaling 136 trillion yen. This was equivalent to a fiscal stimulus of about 2.4% of GDP per year for ten years. As a consequence, there was a sequence of increasing public sector deficits which exceeded 7% of GDP between 2000 to 2002. Public sector debt also rose and, by the end of 2002, had reached 142.7% as a proportion of GDP - the highest among the G7 economies - from 63.5% in 1992, just ten years earlier. The sequence of sustained large annual fiscal deficits every year has made it difficult for the government to undertake further fiscal expansion without generating fears about an

unsustainable level of public debt. Although debt interest payments are not very high at the moment, at 1.2% of GDP, thanks to extremely low interest rates in Japan, the outstanding stock of public debt has increased financial market risk.

In addition, there are problems in the banking sector. Banks are still suffering from a large amount of non-performing loans, as a result of excessive lending during the asset price bubble in the late 1980s and its subsequent collapse in the first half of the 1990s leading to a severe recession. Deflation has placed an increasingly larger real debt burden on borrowers leading to an increase in arrears and defaults. Indeed, the problem of deflation and the increase in non-performing loans are closely related.

Figure 5.1 shows that the Japanese inflation rate has been declining for decades, with some fluctuation around this trend. (The CPI excluding

fresh food index is used. The data are modified to exclude effects of VAT introduction in April 1989 and the VAT rate increase in April 1997.) The CPI inflation rate became near zero in mid-1998, and has been around minus 1 per cent since early 2001. Casual observation suggests that the inflation rate is inversely correlated with GDP growth rate. The inflation rate rose a little in 1996 and 1997 reflecting some economic recovery, but this was following by deflation in 1998 reflecting a sharp downturn in GDP growth in that year. Since 2001, economic activity has contracted and prices have been falling. Although the rate of deflation, of around 1 per cent a year from 2001 through 2002, may seem modest, the cumulative effect of these persistent falls is becoming large. Nominal GDP has declined by 13 trillion yen, or 2.5 per cent of GDP. During the same period, real GDP increased slightly by 4 trillion yen, or 0.7 per cent.

There are three channels through which deflation affects the general economy. First, a fall in general prices increases the real debt burden of borrowers - the problem of debt deflation. This occurs because the nominal income of borrowers falls while debts tend to be fixed in nominal terms, hence, the debt to income ratio of borrowers rises. Falling nominal incomes also reduce the real disposable income of debtors reducing consumption and investment. That widens the GDP gap, making deflation worse. A higher debt burden raises the risk of debt default, hence, it is hard to see how the problem of non-performing loans can be solved as long as deflation persists.

A second channel is through a rising real interest rate. In a situation of depressed demand and falling prices, the most that conventional monetary policy can do is to reduce the short-term policy rate to zero and hold it there. Under normal circumstances with a positive inflation rate, cutting nominal interest rates reduces real interest rates providing a strong stimulus for aggregate demand. However, in a deflationary situation, if nominal interest rates are

zero and can fall no lower, the real interest rate will be high and perhaps rising thereby limiting the effectiveness of monetary policy. This reduces consumption and investment keeping aggregate demand depressed, and also reduces nominal asset prices making the problem of debt deflation worse.

A third channel is through price expectations. Persistent deflation results in a deflationary spiral by generating expectations that it will continue for some time. This reduces bonuses, wages, pension payments, and other components of nominal income.

The above problems are well understood in economic theory, but there are very few historical cases - particularly in recent times - of an economy in deflation. There has been widespread debate on how to take Japan out of deflation, with both fiscal and monetary policy at their limit in terms of solving the problem. Government spending has not worked to end the deflation, and the Bank of Japan's efforts to expand the monetary base have failed to increase the money supply. Thus, there is no longer any obvious policy prescription.

The situation in Japan has influenced monetary policy in the US in response to the sharp fall in US asset prices post-2000. The US Federal Reserve Board lowered policy rates 12 times and by 525 basis points in total between January 2001 and November 2002, which is considered to be a rapid and aggressive response. A key motivation behind this response was the desire to avoid the US economy falling into a deflationary situation similar to the one in Japan(See Ahearne et al., for a study by the Federal Reserve Board of the situation in Japan). The Fed's analysis of Japan's experience in the 1990s suggests that deflation could have been avoided if the Bank of Japan had lowered short-term interest rates more rapidly in the earlier stages of the collapse of asset prices - say by a further 200 basis points between 1991 and early

1995. It argues that, "while deflationary episodes may be difficult to foresee, it should be possible to reduce the chances of their occurring through rapid and substantial policy stimulus. In particular, when inflation and interest rates have fallen close to zero, and the risk of deflation is high, such stimulus should go beyond the levels conventionally implied by baseline forecasts of future inflation and economic activity" (Ahearne et al., 2002).

Even at the current low level of nominal interest rates, of one per cent according to the Federal Funds rate, the Fed has indicated a willingness to take more action if necessary (see Bernanke, 2002). The Fed has argued that the risk of significant deflation in the US economy is extremely low because of the resilience and structural stability of the economy, with characteristics such as a flexible labor market and a strong financial system in contrast to Japan. Nevertheless, it has also said that it "would take whatever means necessary to prevent significant deflation" through cutting interest rates more aggressively than usual, and even resorting to unconventional measures, including asset purchases. They have also suggested possible "bond-price pegging" to bring down longer-term rates whereby ceilings for yields on longer-maturity Treasury debt are announced and supported by unlimited purchases of securities at prices consistent with the targeted yields (Bernanke, 2002). Such strong determination is critical for preventing deflation - the best way to get out of trouble is not to get into it in the first place.

5.1.1 Japanese monetary policy since 1999

On February 19, 1999, the Bank of Japan (BOJ) decided to guide the policy interest rate

(uncollateralized overnight call rate) to 0.15% immediately and later on to "as low as possible", marking the beginning of the ZIRP. In October of that year, liquidity in the market was increased because of Y2K concern. The interest rate was kept low and other measures, like expanding types of securities eligible for purchase by the BOJ, were taken at the same time.

By 2000, the BOJ began to prepare the economy for an increase in interest rates on the grounds that the economy was recovering. In July, it was widely reported that it was ready to raise interest rate but held back from any action because a large retail store, Sogo, was failing. A statement following a BOJ policy meeting said that "the majority of the Policy Board views that Japan's economy is coming to a stage where deflationary concerns are dispelled, which the Board have clearly stated as the condition for lifting the zero interest rate policy." At the following Board meeting on August 11, 2000, the BOJ raised interest rates, citing signs of recovery in corporate investment. The government exercised its right to request for a delay in voting on the proposal to raise the interest rate, but was overruled.[13] On the vote to raise interest rates, two out of nine members dissented.

Many economists viewed the increase in interest rates as premature. In the wake of the collapse of the global bubble in information technology shares, in the spring of 2000, it was unclear whether the rise in output indicators would be sustained. Moreover, consumer prices were still declining in Japan, and consumption showed no sign of a sustained recovery.

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[13] "At the Monetary Policy Meeting held today, the delegates of the Ministry of Finance and the Economic Planning Agency requested, pursuant to Article 19, Section 2 of the Bank of Japan Law, that the Policy Board postpone a vote on the proposed change of the guideline for money market operations until the next Monetary Policy Meeting. Pursuant to Section 3 of the same Article, the Policy Board took a vote on this request and rejected it by majority vote."

As it turned out, the lifting of the ZIRP in August 2000 was a serious mistake. Economic growth rate turned negative again in the third quarter, and later on, it turned out that October 2000 marked the peak of the business cycle. As business conditions deteriorated toward the end of 2000, the BOJ started to find a way to backpedal on the decision of August 2000. In January 2001, the Governor instructed the staff to look for possible room for further improvements in liquidity provision to the market, with a view to ensuring the smooth functioning and stability of financial markets. In February, the official discount rate was lowered from 0.5% to 0.35% (0.25% from March 1), and the policy rate (uncollateralized overnight call rate), that had been set at 0.25% since August 2000, was lowered to 0.15% at the end of that month. In addition, the BOJ introduced a lending facility modeled after the Lombard-type lending facility.

In March 2001, the BOJ effectively reinstated the ZIRP. At the same time, it introduced a new operating target: current account balances held by the financial institutions at the BOJ. If the target balance exceeded required reserves, then the call rate would fall to zero. In addition, the BOJ set a target of 5 trillion yen above the required reserves that were around 4 trillion yen. This meant a return to the ZIRP plus excess reserves. As the BOJ started to provide more liquidity than the amount of required reserves, excess reserves started to pile up. In addition, the BOJ decided to increase its purchases of long-term government bonds, from 400 billion yen per month to an amount exceeding 400 billion yen per month.

Soon after these changes, serious debate began on the policy of quantitative easing given the lack of room for maneuvering policy rates. There are two key indicators of the implementation of such easing: the value of current account balances at the BOJ (basically, the amount of non-required reserves), and the amount of long-term government bond purchases per month. The target current account balances were increased to around 6 trillion yen in August 2001, to over 6 trillion yen in September 2001, to 10-15 trillion yen in December 2001, and to 15-20 trillion yen in October 2002. The amount of outright long-term bond purchases also increased, from 400 to 600 billion yen in August 2001, to 800 billion yen in December 2001, to 1 trillion yen in February 2002, and to 1.2 trillion yen in October 2002. A summary of these measures with excerpts from the BOJ statements is given in Table 5.1.

Table 5.1 Monetary Policy in Japan between 1999 and 2003

Date	Monetary Policy Decisions
February 12, 1999	[Zero interest rate policy] "The Bank of Japan will provide more ample funds and encourage the uncollateralized overnight call rate to move as low as possible. ...initially aim to guide the above call rate to move around 0.15%, and subsequently induce further decline in view of the market developments."
October 13, 1999	[Y2K] "In conducting money market operations, the Bank will respond flexibly such as by providing ample funds over the year-end, paying due consideration to fund demand related to Year 2000 problems." [Enhancement] Introduction of outright operations of TBs and FBs; Repo operations of using 2-year government securities.
July 17, 2000	[Judgment that the economy is recovering] "The Policy Board views that Japan's economy is recovering gradually, with corporate profits and business fixed investment continuing to increase. The Policy Board also judges that the economy is likely to recover gradually led mainly by business fixed investment, unless there are major adverse external shocks." "With regard to the prices, the Policy Board views that the downward pressure on prices stemming from weak demand is declining significantly while an economic recovery is expected to continue moderately." "Given the above considerations, the majority of the Policy Board views that Japan's economy is coming to a stage where deflationary concerns are dispelled, which the Board have clearly stated as the condition for lifting the zero interest rate policy."
August 11, 2000	[End of the zero interest rate policy] "At the Monetary Policy Meeting held today, the Bank of Japan decided, by majority vote, to change the guideline for money market operations for the inter-meeting period as follows: The Bank of Japan will encourage the uncollateralized overnight call rate to move on average around 0.25%." "At present, Japan's economy is showing clearer signs of recovery, and this gradual upturn, led mainly by business fixed investment, is likely to continue. Under such circumstances, the downward pressure on prices stemming from weak demand has markedly receded. Considering these developments, the Bank of Japan feels confident that Japan's economy has reached the stage where deflationary concern has been dispelled, the condition for lifting the zero interest rate policy."
February 9, 2001	[Lowering the official discount rate] "The official discount rate be reduced by 0.15 percentage points to 0.35 per cent, effective on February 13, 2001, with a view to enhancing the effectiveness of the newly created lending facility described above in stabilizing short-term interest rates." [Introduction of the Lombard-type lending facility] "In the current framework of monetary policy, the Bank provides the market with liquidity by the monetary operations that the Bank initiates. In addition to these, the Bank will introduce a standby lending facility ('Lombard-type' lending facility) through which the Bank extends loans at the requests of counterparties with the conditions pre-specified by the Bank. The Bank will prepare necessary arrangements so that the facility can be put in place in March 2001."

Table 5.1 Monetary Policy in Japan between 1999 and 2003 (cont'd)

| Date	Monetary Policy Decisions
February 28, 2001	[Lowering the call rate] "Encourage the uncollateralized overnight call rate to move on average around 0.15 per cent." [Lowering the official discount rate] "Reduce the official discount rate to 0.25 per cent, effective on March 1, 2001."
March 19, 2001	[Return of the zero interest rate policy, but with a new operating target] "The main operating target for money market operations be changed from the current uncollateralized overnight call rate to the outstanding balance of the current accounts at the Bank of Japan. Under the new procedures, the Bank provides ample liquidity, and the uncollateralized overnight call rate will be determined in the market at a certain level below the ceiling set by the Lombard-type lending facility." [Current account target, 5 trillion yen] "For the time being, the balance outstanding at the Bank's current accounts be increased to around 5 trillion yen, or 1 trillion yen increase from the average outstanding of 4 trillion yen in February 2001. As a consequence, it is anticipated that the uncollateralized overnight call rate will significantly decline from the current target level of 0.15 per cent and stay close to zero per cent under normal circumstances." [Condition for a future change in the policy] "The new procedures for money market operations continue to be in place until the consumer price index (excluding perishables, on a nationwide statistics) registers stably a zero per cent or an increase year on year." [Increase in purchasing long-term bonds] "The Bank will increase the amount of its outright purchase of long-term government bonds from the current 400 billion yen per month, in case it considers that increase to be necessary for providing liquidity smoothly. The outright purchase is, on the other hand, subject to the limitation that the outstanding amount of long-term government bonds effectively held by the Bank, i.e., after taking account of the government bond sales under gensaki repurchase agreements, be kept below the outstanding balance of banknotes issued."
March 19, 2001	[5 trillion yen plus] "The Bank of Japan will conduct money market operations, aiming the outstanding balance of the current accounts at the Bank at around 5 trillion yen. Should there be a risk of financial market instability, e.g., a rapid surge in liquidity demand, the Bank will provide ampler liquidity irrespective of the guideline above."
August 14, 2001	[Current Account, 6 trillion yen] "The outstanding balance of current accounts held at the Bank of Japan will be raised from around 5 trillion yen to around 6 trillion yen" [JGB, 600 billion yen] "The amount of the outright purchase of long-term government bonds will be increased from the current 400 billion yen per month to 600 billion yen per month."

Table 5.1 Monetary Policy in Japan between 1999 and 2003 (cont'd)

Date	Monetary Policy Decisions
September 18, 2001	[Current account, 6 trillion yen, plus] "For the time being, the Bank will provide ample liquidity to the money market by aiming at maintaining the outstanding balance of current accounts held at the Bank at above 6 trillion yen." [Reduction in the official discount rate] "Effective tomorrow, the official discount rate will be reduced by 0.15 percentage points to 0.10 percent."
December 19, 2001	[Current account, 10-15 trillion, plus] "The Bank of Japan will conduct money market operations, aiming at the outstanding balance of the current accounts at the Bank at around 10 to 15 trillion yen. Should there be a risk of financial market instability, such as a surge in liquidity demand, the Bank will provide more liquidity irrespective of the guideline above." [Long-term bonds, 600 billion yen] "The Bank will increase its outright purchase of long-term government bonds from the current 600 billion yen per month or 7.2 trillion yen per year to 800 billion per month or 9.6 trillion yen per year."
February 28, 2002	[Ample Liquidity] For the time being, to secure the financial market stability towards the end of a fiscal year, the Bank will provide more liquidity to meet a surge in demand irrespective of the target of current account balances, around 10 to 15 trillion yen. [Long-term bonds, 1 trillion yen] In order to provide liquidity smoothly, the Bank will increase the outright purchase of long-term government bonds from the current 800 billion yen per month (or 9.6 trillion yen per year) to 1 trillion yen per month (or 12 trillion yen per year).
October 30, 2002	[Current Account, 15-20 trillion] The Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 15 to 20 trillion yen. [Long-term bonds, 1.2 trillion yen] The Bank will increase its outright purchase of long-term government bonds from the current one trillion yen per month to 1.2 trillion yen per month.
March 5, 2003	[Current Account, 17-22 trillion, responding to the establishment of the Japan Post, plus] From April 1, considering necessary adjustment due to the establishment of the Japan Post, the Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 17 to 22 trillion yen. For the time being, the Bank provides more liquidity irrespective of the above target when necessary to secure financial market stability towards the end of a fiscal year.
April 30, 2003	[Current Account, 22-27 trillion plus] The Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 22 to 27 trillion yen. For the time being, the Bank provides more liquidity irrespective of the above target when necessary to secure financial market stability.

Table 5.1 Monetary Policy in Japan between 1999 and 2003 (cont'd)

Date	Monetary Policy Decisions
May 20, 2003	[Current Account, 27-30 trillion plus] The Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 27 to 30 trillion yen. Should there be a risk of financial market instability, such as a surge in liquidity demand, the Bank will provide more liquidity irrespective of the above target.
October 10, 2003	[Current Account, 27-32 trillion plus] The Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 27 to 32 trillion yen. Should there be a risk of financial market instability, such as a surge in liquidity demand, the Bank will provide more liquidity irrespective of the above target.
January 20, 2004	[Current Account, 30-35 trillion plus] The Bank will conduct money market operations, aiming at the outstanding balance of current accounts held at the Bank at around 30 to 35 trillion yen. Should there be a risk of financial market instability, such as a surge in liquidity demand, the Bank will provide more liquidity irrespective of the above target.

Note: Constructed from Bank of Japan statements by the authors
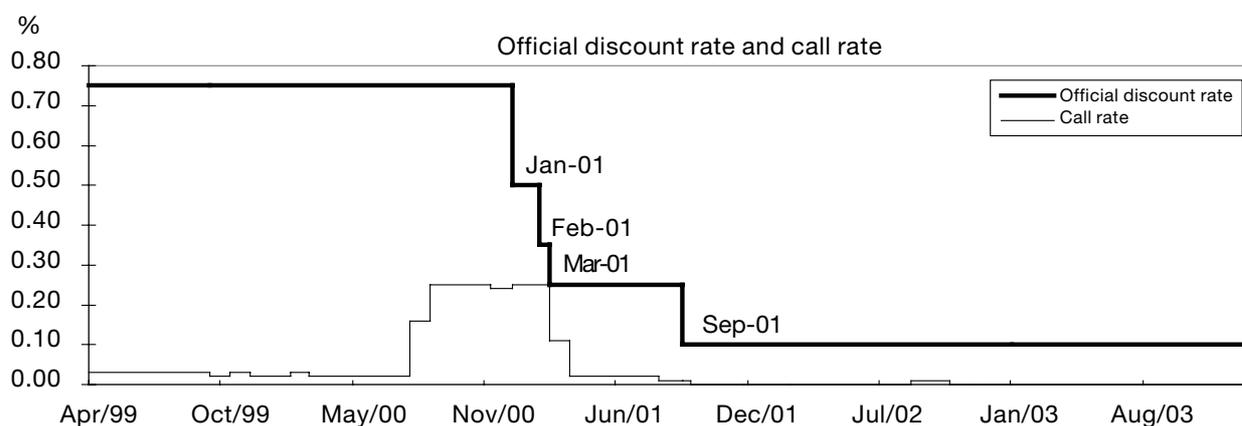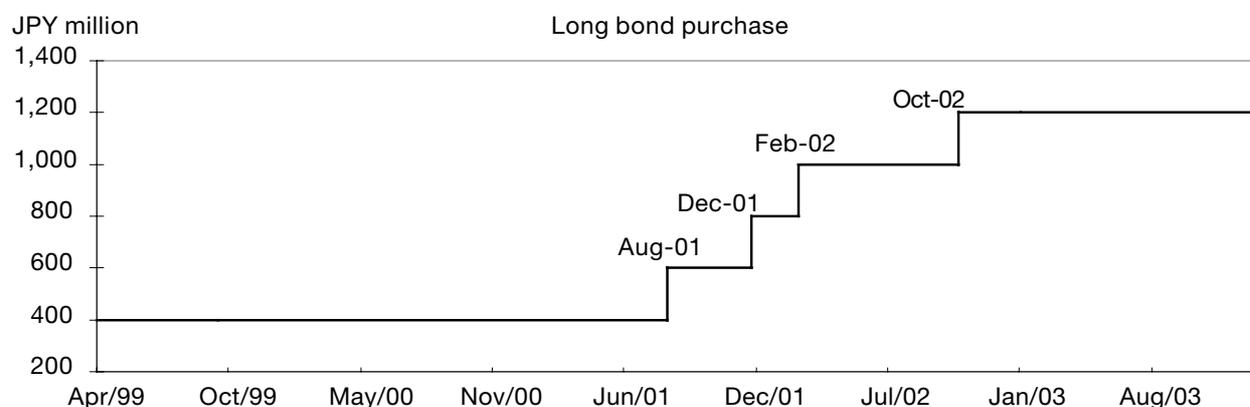
The above measures resulted in a rapid increase in monetary base growth, from 7.4% in 2001 to 25.7% in 2002, but failed to significantly increase money supply growth (M2+CD), which was 2.8% in 2001, and 3.3% in 2002. Moreover, prices continued to fall, and the inflation rate has remained negative at around minus 1 per cent (-0.7% in 2001, and -0.9 in 2002).

5.1.2 Expansion of monetary base and its effects

The BOJ is the first central bank among industrialized economies to implement a ZIRP, at least in recent history. At zero interest rates, excess reserves, that is current account balances at the Bank of Japan over and above required reserves, were allowed to rise in steps. This was to ensure sufficient liquidity in the banking sector to allow banks to increase their lending should they so choose. As already mentioned, the BOJ also undertook quantitative easing through the outright purchase of additional long-term bonds, as opposed to their more usual purchases of short-term government paper, e.g. treasury bills. This was intended to expand the amount of money in circulation encouraging a portfolio shift among long-term bondholders. In order to stimulate consumption and investment, long-term interest rates were lowered and kept low.

However, these policies had little success. There was no major pick-up in consumption or investment during 2002, although the economy did expand a little through higher exports. For their part, banks did not increase their lending and instead raised their holdings of long-term bonds. This was motivated by lower demand for bank loans, but also by the unwillingness of banks to expand their lending because of low capital ratios. In fact, banks were struggling to maintain their capital adequacy ratio to the BIS standard of 8%. Thus, their approach to lending has become more selective, especially towards small- and medium-sized firms, and the large monetary base expansion was not successful in increasing the money supply (as measured by M2 + CD). Some argue that it will work eventually because a large portion of monetary base expansion has been achieved by an increase in current account balances at the Bank of Japan. Figure 5.3 shows the annual growth in the monetary base, and the monetary base less the current account balances at the Bank of Japan, and M2+CD. It clearly shows the divergence in the growth of the monetary base and the money supply in 2001-2002.

Figure 5.3 Monetary Aggregate and Monetary Base in Japan (with/without BOJ acct)
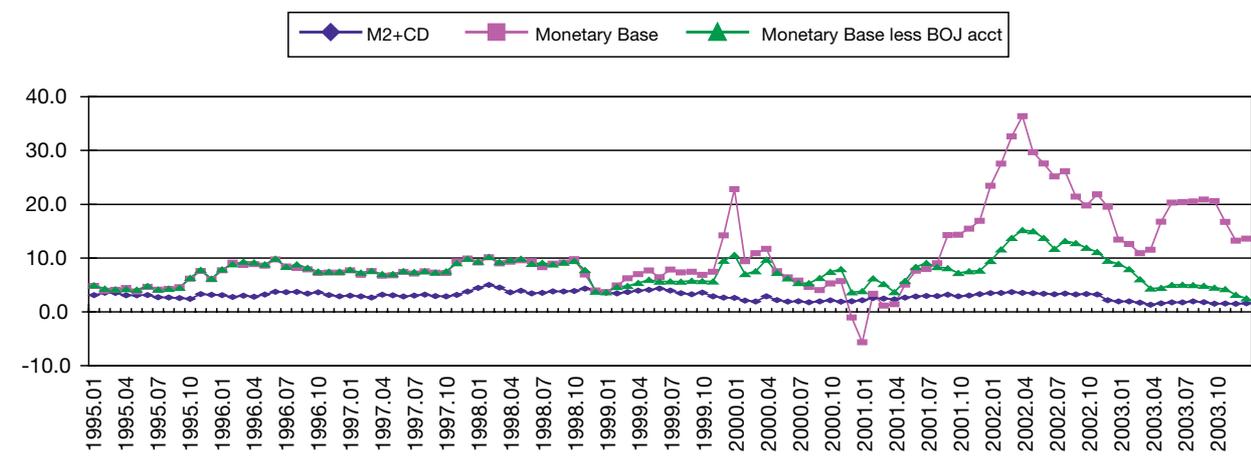
Given the failure of monetary base expansion to have significant effects on the real economy, a number of commentators have suggested that the BOJ undertake less conventional monetary policy measures. First, it has been suggested that it increases its outright purchases of long-term bonds. Since purchases by the BOJ are still below the value of new government issues, this is possible. One drawback is that the long-term interest rate is already low, at 0.8 per cent in March 2003, so there is little scope to provide much of a stimulus. Second, some have proposed that the BOJ expand its purchases of assets to include any high-quality asset such as listed index-linked stock mutual funds and listed real estate investment funds. The prices of these assets are transparent because they are listed and traded on the stock market, and mutual funds can be linked to major stock price indices, such as TOPIX and Nikkei, to overcome the potential criticism that the Bank is interfering in the valuation of individual companies.

5.2 Proposed inflation targeting in Japan

Even if the BOJ expands its use of 'unconventional' monetary policy instruments, we argue that it is important to clarify the mandate and objective of the Bank of Japan at the same time. Though the general aim of monetary policy is clearly articulated in the Bank of Japan Law as the pursuance of price stability, this could be made more specific by a commitment to inflation targeting. Provided that the new framework is credible, it could help to anchor inflation expectations around a positive rate of inflation thereby providing a possible way out of deflation. Krugman (1998) was one of the first to argue that raising the inflation rate would help Japan out of its liquidity trap, while Ito (1999c) and Cargill, et al. (2000) were the first to advocate an inflation target.

An important issue to be addressed when implementing inflation targeting in Japan is the

appropriate target to use. This will depend on, among other things, the extent of price bias in the CPI. Shiratsuka (1999) estimated this to be around 0.9 percentage points due to time lags in the adjustment of prices following the results of sampling different goods and retail outlets, though this upward bias may have been reduced by revisions to the CPI after 2001. This compares with an estimate of 1.1 per cent (with a range of 0.8 - 1.6 per cent) in the US from Boskin Report (see Advisory Commission, 1996 and Boskin et al., 2001). The Bank of Japan could commit to an inflation target of, say 1 to 3 per cent a year to be achieved in two years. That would allow for some measurement bias in CPI inflation, and therefore be tantamount to "price stability" which is the stated and sole objective of the BOJ in law. During the transition from the current inflation rate of -1 per cent to the new target of 1 to 3%, the BOJ could also specify a transitory target of 0 to 2%. Once an inflation target is chosen, the Bank of Japan would be solely responsible for achieving it using any available monetary policy instrument.

Introducing inflation targeting in Japan has several benefits, such as enhancing accountability and instrument independence, as well as helping to generate positive inflation expectations.

Under the current framework for monetary policy, the BOJ has legal independence, granted in April 1998, but there is an issue about accountability. The Governor cannot be dismissed, except for reasons to do with physical or mental incapacity or personal bankruptcy, and monetary policy decisions are taken by the independent Monetary Policy Board, which does not include voting government representatives. The transparency of the Board's policy discussions and decision-making is supported by the publication of minutes of the meetings and votes. However, the current system does not provide much accountability of the Board for its decisions. In particular, the objective of monetary policy is price stability but

its meaning is rather vague in the absence of any commitment to a particular target for the CPI. When the ZIRP was reintroduced in March 2001, the Board stated that monetary policy would stay loose until "the consumer price index (excluding perishables, on a nationwide statistics) registers a stable zero per cent or an increase year on year." But, this differs from inflation targeting in two important respects. First, there is no announced ceiling for the inflation rate and, second, the time frame for achieving the target is not made explicit, thereby reducing the perceived commitment of the BOJ to deal with the problem of deflation. Thus, under the existing framework, it is difficult to judge the success or failure of the BOJ to achieve its objective of price stability and there is no institutional structure to deliver accountability.

Announcing a numerical target for inflation would help to clarify the objective of the BOJ which is a prerequisite for an improvement in accountability. It is also possible that it would allow monetary policy to be more flexible because, with an inflation target in place, the task of explaining the Board's decisions is easier. Policy changes or even reversals would be less likely to damage the credibility of monetary policy so long as these were explained in the context of the new inflation target. In addition, it would be easier to set monetary policy in a forward-looking manner. If the central bank believed that inflationary pressures were about to increase, it could tighten policy even though the current inflation rate was low, although the reasons would need to be carefully explained. The BOJ would also have flexibility to respond to external shocks as long as the target was credible.

In addition, an inflation target would help the BOJ to define the parameters of its independence. It could benefit from a clearer steer on the degree of instrument independence, and whether this includes quantitative measures as well as control over the interest rate. At the moment, the government is often seen to interfere in arguing

for increases in liquidity through more outright purchases of long-term government bonds. Conflicts between the BOJ and the government, like the one which occurred in August 2000 over the lifting of the ZIRP, could be avoided by an increase in BOJ (instrument) independence if its mandate was clearer. So long as inflation is on target, or expected to be on target, the scope for government interference in monetary policy decisions would be limited. The BOJ could only be held responsible for the target being missed.

The potential effect of inflation targeting on inflation expectations is perhaps one of the most important advantages of a new framework in Japan's case. Announcing an inflation target would have a positive impact on financial markets and the economy as a whole provided, of course, that the target is believed to be achievable. A positive inflation target could help curb deflationary pressures if the BOJ were successful in convincing financial markets and the general public that it had the measures to achieve this. This would, in turn, help to stimulate the real economy making inflationary expectations self-fulfilling.

Those who argue that an inflation target would not work for Japan believe that there are no conventional monetary policy instruments to achieve the target. This group includes the BOJ who argue that there is uncertainty about the effectiveness of existing policy instruments to bring an end to deflation (see Ueda, 2000). There is also disagreement about whether or not 'unconventional' policy instruments would be effective in solving the problem of deflation. Our view is that monetary base expansion will eventually cause private-sector investors to change their portfolio holdings, though the precise timing and size of this switch is not clear.

Others are concerned that the use of unconventional measures, such as the BOJ buying more JGBs, stocks or real estate, risks causing

hyperinflation when the economy eventually recovers. It seems a little premature to worry about hyperinflation in a deflationary environment, which is a bit like worrying about high blood pressure when a patient has lost blood and is fainting. In addition, there are measures to prevent hyperinflation should this become a problem once deflation is over. Critics also worry that the transmission mechanism of unconventional monetary policy measures is not clear since no other industrialised country has had to use these on the scale required to deal with persistent deflation.

While it is true that all of the advanced countries considered in Section 2 implemented an inflation targeting framework as a way of lowering the inflation rate, there is no reason why it could not work to generate a positive inflation rate in a deflationary situation. In Sweden during the period between 1931 and 1937, the use of price level targeting is a good example of how this framework can help to avoid deflation (see Berg and Jonung, 1999).

Some economists believe that part of Japan's problems have been caused by a persistent appreciation of the yen, and that action should be taken to depreciate the currency. Depreciation can help the economy to recover in two ways, by stimulating exports and therefore aggregate demand, and by raising the inflation rate through the higher cost of imported goods and services. For example, Svensson (2001, 2002) argues that the BOJ should target the price level and use currency depreciation to solve deflation. Once the target is achieved, an explicit inflation or price level target should be implemented.

A significant depreciation of the yen, say from 120 yen/dollar to 160 yen/dollar, would certainly help

to stimulate the economy and curb deflationary pressures, but there are some potential drawbacks. First, the export/GDP ratio in Japan is less than ten per cent, so that depreciation may have a limited effect on inflation. Second, current account surpluses are already large, at around 2 per cent of GDP, and further increases may cause problems with trading partners. Third, achieving a significant depreciation may be tricky. Svensson (2001) believes that this could be achieved by undertaking as much intervention as is necessary. But, in practice, massive intervention especially if carried out by the purchase of US Treasury Bills may be resisted by trading partners and especially the United States. A depreciation arising from changes in economic fundamentals, such as monetary expansion, may be more politically defensible than one brought about by unlimited foreign exchange intervention.

5.3 Concluding remarks

A key lesson from Japan's experience is that it is better to act preemptively to avoid deflation in the first place, rather than try to deal with this once deflation and deflationary expectations have become entrenched. One particular lesson in designing inflation targets is that it is important to keep the floor of the target rate above zero per cent in order to allow for some price bias and minimize the risk of excessively tight monetary policy and deflation.

If it proves difficult to keep inflation in positive territory, the authorities should consider unconventional monetary policy actions and apply these promptly and aggressively. The Japanese experience post-March 2001 of increasing liquidity and outright purchases of long-term bonds by the BOJ should be carefully studied so that the same mistakes are not repeated.

Chapter 6. Conclusions

This study has looked at the issues surrounding implementing an inflation targeting framework in Asian economies. This has proved a useful framework for many advanced countries that have successfully moved to low and stable inflation. The basic structure and various technical issues were reviewed in Chapter 2. More emerging market economies have moved to inflation targeting recently as they have moved away from a regime of fixed exchange rates. There are a number of issues specific to the implementation of inflation targeting in emerging market economies. First, economic statistics may not be as reliable as in advanced countries. Second, structural changes are larger, especially in Asian economies, and as a consequence price bias may be more serious. Therefore, the appropriate level of the inflation target and the definition of price stability need careful consideration. A related consideration is that modelling the monetary transmission mechanism for use in inflation forecasting is a much more difficult exercise. Third, the inflation target needs to take into account possible Balassa-Samuelson effects in economies that are fast-growing and therefore have a rising price level, on the one hand, and the Japanese experience of deflation, on the other. Taking into account all of these factors, we *recommend that emerging market countries set their inflation targets at a higher central rate than in advanced economies and with a wider band of fluctuation*.

The practice of inflation targeting among Asian countries is described and compared in Chapter 4. Various aspects of inflation targeting, such as when these are introduced, the optimal target range, and degree of independence of the central bank, are discussed and *recommendations are made for each of the Asian inflation-targeting countries considered*. This study is the first, to the best of our knowledge, to describe and analyze inflation targeting in Asian emerging market economies, with cross-country comparisons.

There are some countries for which inflation targeting may not represent the best approach to monetary policy. These can be categorised into two types: first countries with a fixed exchange rate and, second, less developed countries.

Countries with a (de facto) fixed exchange rate regime are advised not to pursue inflation targeting because of the potential conflict between targeting both the exchange rate and inflation. This category includes economies like Brunei, China, Hong Kong SAR, and Malaysia. However, inflation targeting could be implemented if these countries switch to a (managed) floating exchange rate, indeed, this would provide an alternative anchor for inflation expectations. For example, China is expected to liberalize its capital account at some stage. If, at the same time, it switches from a de facto dollar peg (very a narrow band) to a flexible exchange rate (with a reasonably wide band, of say plus or minus 15 per cent around the central rate), inflation targeting could provide an alternative nominal anchor to replace the current monetary-aggregate target. Of course, before adopting inflation targeting, the Chinese authority must fulfill a number of conditions necessary to ensure success, including independence of the central bank, enhancing monetary policy instruments and tracing out the monetary transmission mechanism.

With regard to less developed economies in Asia, like Cambodia, East Timor, Laos, Mongolia, Myanmar, North Korea, and Vietnam, it may be difficult to implement inflation targeting. The monetary authorities in these countries would likely have difficulty in controlling the monetary base or the interest rate, and other policy instruments necessary to successfully target inflation. In many

of these countries, reform of institutions and markets would be required prior to introducing inflation targeting. For example, in Myanmar, the switch to a unified exchange rate regime (as opposed to multiple exchange rates), closing fiscal deficits with monetization, and removing export controls, should proceed before changing the monetary policy framework.

There are, however, other Asian economies that could benefit from introducing inflation targeting, namely Taiwan and Singapore. The economy of Taiwan has well-functioning financial markets and a flexible exchange rate regime. Although the economy has recovered well from the Asian Financial Crisis in 1997-98, it is still vulnerable to future political and external economic shocks. It could therefore benefit from an inflation targeting framework and greater institutional independence. Singapore might also benefit from using inflation targeting as an anchor for monetary policy given that it has a (managed) floating exchange rate. Our view is that, taking into account its high dependence on trade - with a trade to GDP ratio of over 270% - a managed float combined with inflation targeting is an appropriate policy framework.

The relationship between monetary policy and exchange rate policy is a particularly difficult one. It is easy to recommend that a central bank should concentrate its policy objective on price stability instead of exchange rate stability. However, when the country is 'open' - say, the export/GDP ratio is more than 30 per cent - and "small" - the exchange market is vulnerable to sudden changes in capital flows - then the monetary authorities cannot ignore the exchange rate movements. Many small open economy countries tend to pay attention to both the inflation rate and the exchange rate. In this study, a dogmatic rejection of any intervention in the foreign exchange market is not recommended, since the exchange rate market sometimes

behaves erratically and the exchange rate is an important variable for the inflation rate in a small open economy. When a depreciation of the exchange rate, due to false perception of foreign investors on the state of the economy, causes inflation and inflation causes depreciation, there is a possibility of the country getting caught in a depreciation-inflation spiral. Some appropriate reference level for both the exchange rate and the price level would help to avoid this situation. *It is recommended that small, open economy countries, such as Indonesia, Korea, the Philippines, and Thailand, pursue both an inflation target range and an implicit basket band exchange rate regime*. We argue that, in most of the circumstances, pursuing both targets set as ranges would not be conflicting. The targets could work as a source of stability in expectations, with the ranges allowing some flexibility.

This study has presented an overview and some policy recommendations for small, open Asian economies that employ inflation targeting with a floating exchange rate regime. It is hoped by the authors that the study will be helpful for the monetary authorities in the countries considered here in revising and implementing the inflation-targeting framework. It can also serve as a guideline for those countries that are considering introducing inflation targeting in the future as a framework for monetary policy.

References

Advisory Commission to Study the Consumer Price Index (1996), *Toward a More Accurate Measure of the Cost of Living: Final Report*, Senate Finance Committee.

Ahearne, Alan et al (2002), "Preventing Deflation: Lessons from Japan's Experience in the 1990s, " Board of Governors of the Federal Reserve System, International Finance Discussion Papers, No. 729, June.

Alamasyah, Halim et al (2001), "Towards Implementation of Inflation Targeting in Indonesia," *Bulletin of Indonesian Economic Studies*, 37(3): 309-24.

Amato, Jeffrey and Stefan Gerlach (2002), "Inflation Targeting in Emerging Market and Transition Economies: Lessons after a Decade," *European Economic Review*, 46, 781-790

Ball, Laurence (1999), "Policy Rules for Open Economies," in John B. Taylor, ed., *Monetary Policy Rules,* Chicago: NBER-University of Chicago Press: 127-44.

Ball, Laurence and Niamh Sheridan (2003), "Does Inflation Targeting Matter?" NBER Working Paper No. 9577, Cambridge M.A.: National Bureau of Economic Research.

Bank of Indonesia (2002), *Transmission Mechanisms of Monetary Policy in Indonesia*, Directorate of Economic Research and Monetary Policy, Bank of Indonesia.

Bank of Thailand (2002), *Inflation Report*.

Berg, Claes and Lars Jonung (1999), "Pioneering Price Level Targeting: The Swedish Experience, 1931-1937," *Journal of Monetary Economics*, 43(3): 525-51.

Bernanke, B. S. and F. S. Mishkin (1997), "Inflation Targeting: A New Framework for Monetary Policy?" *Journal of Economic Perspectives*, 11(2): 97-116.

Bernanke, B. S. et al (1999), *Inflation Targeting: Lessons from the International Experience*, Princeton: Princeton University Press.

Bernanke, Ben S. and Mark Gertler (2001), "Should Central Banks Respond to Movements in Asset Prices," *American Economic Review*, 91(2): 253-57.

Bernanke, Ben S. (2002), "Deflation: Making Sure "It" Doesn't Happen Here," National Economists Club, Washington D.C., November 21, 2002.

Boskin, Michael J. et al (1998), "Consumer Prices, the Consumer Price Index, and the Cost of Living," *Journal of Economic Perspectives*, 12 (1): 3-26.

Calvo, Guillermo A. and Reinhart, Carmen M. (2000), "Fear of Floating," NBER Working Paper No.7993, Cambridge M.A.: National Bureau of Economic Research.

Carare, Alina et al (2002), *Establishing Initial Conditions in Support of Inflation Targeting*, IMF Working Paper No. 02/102, Washington D.C.: International Monetary Fund.

Cargill, Thomas F., Michael M. Hutchison and T. Ito (2000), *Financial Policy and Central Banking in Japan*, Cambridge and London: MIT Press.

Cecchetti, Stephen G. et al. (2000), "Asset Prices and Central Bank Policy," Geneva Reports on the World Economy, No. 2, International Center for Monetary and Banking Studies and Centre for Economic Policy Research.

Cecchetti, Stephen G., Hans Genberg and Sushil Wadhwani (2003), "Asset Prices in a Flexible Inflation Targeting Framework", in *Asset Price Bubbles*, Cambridge M.A.: MIT Press.

Debelle, Guy and Stanley Fischer (1994), "How Independent Should a Central Bank Be?" in Jeffrey C. Fuhrer, ed., *Goals, Guidelines, and Constraints Facing Monetary Policymakers*, Boston: Federal Reserve Bank of Boston.

Debelle, Guy and Cheng Hoon Lim (1998), "Preliminary Considerations of an Inflation Targeting Framework for the Philippines," IMF Working Papers No. 98/39, Washington D.C.: International Monetary Fund.

Eichengreen, Barry (2002), "Can Emerging Markets Float? Should They Inflation Target?" Banco Central do Brasil Working Paper No. 36.

Fischer, Stanley (2001), "Exchange Rate Regimes: Is the Bipolar View Correct?" *Journal of Economic Perspectives*, 15(2): 3-24.

Goldstein, Morris (2002), *Managed Floating Plus*, Washington D.C.: Institute for International Economics.

Goodfriend, Marvin (2003), "Interest Rate Policy Should Not React Directly to Asset Prices," in *Asset Price Bubbles*, Cambridge M.A.: MIT Press.

Gordon, Robert J. (1999), "The Boskin Commission Report and its Aftermath," Bank of Japan, *Monetary and Economic Studies*, 17(3): 41-68.

Hernandez, Leonardo and Peter Montiel (2001), "Post-Crisis Exchange Rate Policy in Five Asian Countries: Filling in the 'Hollow Middle'?" IMF Working Paper No.01/170, Washington D.C.: International Monetary Fund.

Hoffmaister, Alexander W. (2001), "Inflation Targeting in Korea: An Empirical Exploration," IMF Staff Papers 48(2), Washington D.C.: International Monetary Fund.

Ito, Takatoshi, Eiji Ogawa and Yuri N. Sasaki (1998), "How did the Dollar Peg Fail in Asia?" *Journal of the Japanese and International Economies*, 12: 256-304.

Ito, Takatoshi (1999a), "Asian Currency Crisis: Its Origin and backgrounds," *Journal of Development Assistance*, 5(1): 108-41.

Ito, Takatoshi (1999b), "Capital Flows in East and Southeast Asia," in M. Feldstein, ed., *International Capital Flows*, Chicago: NBER-University of Chicago Press: 111-32.

Ito, Takatoshi (1999c), "Introducing Inflation Targeting in Japan," *Financial Times*, October 19.

Ito, Takatoshi (2000a), "Capital Flows in Asia," in Sebastian Edwards, ed., *Capital Flows and the Emerging Economies: Theory, Evidence, and Controversies*, Chicago: NBER-University of Chicago Press: 255-96.

Ito, Takatoshi (2000b), "Principal Causes of Asian Export Deceleration," in Dilip Das, ed., *Asian Exports*, New York: Asian Development Bank - Oxford University Press: 75-114.

Ito, Takatoshi and Yuko Hashimoto (2003), "Bank Restructuring in Asia: Korea", ADBI Working Paper (forthcoming), Tokyo: Asian Development Bank Institute.

Jones, Jiri, and Frederic S. Mishkin (2003), "Inflation Targeting in Transition Countries: Experience and Prospects," NBER Working Paper No. 9667, Cambridge M.A.: National Bureau of Economic Research.

King, Mervyn (1998), "The Inflation Target Five Years On," *LSE Financial Markets Group Review*, 37, London: London School of Economics Financial Markets Group.

Krugman, Paul (1999), "It's Baaack! Japan's Slump and the Return of the Liquidity Trap," in William C. Brainard and George L. Perry, eds., *Brookings Papers on Economic Activity 1998: 2*, Washington D.C.: The Brookings Institution: 137-87.

Kydland, Finn E. and Edward C. Prescott (1977), "Rules Rather Than Discretion: The Inconsistency of Optimal Plans," *Journal of Political Economy*, 85(3): 473-91.

Lee, Jong-Kun (2000), "Assessment of Inflationary Pressure and Monetary Policy," *Bank of Korea Economic Papers*, 3(1): 1-56.

Levy-Yeyati, Eduardo and Federico Sturzenegger (2002), "Classifying Exchange Rate Regimes: Deeds vs. Words," Universidad Torcuato Di Tella, mimeo.

McKinnon, Ronald I. (2000), "After the Crisis, the East Asian Dollar Standard Resurrected: An Interpretation of High-Frequency Exchange-Rate Pegging," Stanford University Working Paper 00-013, Stanford: Stanford University.

Ministry of Finance, Japan and Ministry of Finance, France (2001), "Exchange Rate Regimes for Emerging Market Economies," discussion paper for the ASEM meeting, downloadable from www.mof.go.jp/english/asem/aseme03e.htm

Mishkin, Frederic S. (1999), "International Experiences with Different Monetary Policy Regimes", NBER Working Paper No. 7044, Cambridge M.A.: National Bureau of Economic Research.

Mishkin, Frederic S. (2000), "Inflation Targeting in Emerging-Market Countries," *American Economic Review*, 90(2): 105-09.

Mishkin, Frederic S. and Klaus Schmidt-Hebbel (2001), "One Decade of Inflation Targeting in the World," NBER Working Paper No. 8397, Cambridge M.A.: National Bureau of Economic Research.

Mishkin, F. S. and Adam S. Posen (1997), "Inflation Targeting: Lessons from Four Countries," *Federal Reserve Bank of New York Economic Policy Review*, 3(3): 9-110.

Mishkin, Frederic S. and Miguel Savastano (2001), "Monetary Policy Strategies for Latin America," *Journal of Development Economics*, 66(2): 415-44.

Mishkin, Frederic S. and Eugene N. White (2003), "U.S. Stock Market Crashes and Their Aftermath: Implications for Monetary Policy," in *Asset Price Bubbles*, Cambridge M.A.: MIT Press.

Ogawa, Eiji and Takatoshi Ito (2002), "On the desirability of a Regional Basket Currency Arrangement," *Journal of the Japanese and International Economies*, 16(3): 317-34.

Ogawa, Eiji and Lijian Sun (2001), "How were Capital Flows Stimulated under the Dollar Peg System?" in Takatoshi Ito and Anne Kruger, eds., *Regional and Global Capital Flows: Macroeconomic Causes and Consequences*, Chicago and London: University of Chicago Press.

Oh, Junggun (1999), "Inflation Targeting, Monetary Transmission Mechanism and Policy Rules in Korea," *Bank of Korea Economic Papers*, 2(1): 102-46.

Ramakrishnan, Uma and Vamvakidis Athanasios (2002), "Forecasting Inflation in Indonesia," IMF Working Paper No. 02/111, Washington DC: International Monetary Fund.

Reinhart, Carmen M. and Kenneth S. Rogoff (2002), "The Modern History of Exchange Rate Arrangements: A Reinterpretation," NBER Working Paper No. 8963, Cambridge M.A.: National Bureau of Economic Research.

Rogoff, Kenneth (1985), "The Optimal Degree of Commitment to an Intermediate Monetary Target," *Quarterly Journal of Economics*, 100(4): 1169-89.

Schaechter, Andrea, Mark R. Stone and Mark Zelmer (2000), *Adopting Inflation Targeting: Practical Issues for Emerging Market Countries*, IMF Occasional Paper No. 202 (reviewing Brazil, Chile, the Czech Republic, Israel, Poland and South Africa), Washington D.C.: International Monetary Fund.

Shiratsuka, Shigenori (1999), "Measurement Errors in the Japanese Consumer Price Index," *Monetary and Economic Studies*, 17(3): 69-102.

Svensson, Lars E.O. (1999), "Price Level Targeting vs. Inflation Targeting: A Free Lunch?" *Journal of Money, Credit, and Banking*, 31(3): 277-95.

Svensson, Lars E.O. (2000), "Open-Economy Inflation Targeting," *Journal of International Economics*, 50(1): 155-183.

Svensson, Lars E. O. (2001), "The Zero Bound in an Open Economy: A Foolproof Way of Escaping from a Liquidity Trap," Bank of Japan, *Monetary and Economic Studies*,19(S1): 277-312.

Svensson, Lars E. O. (2002), "Escaping from a Liquidity Trap and Deflation: The Foolproof Way and Others," *Journal of Economic Perspectives*, forthcoming.

Ueda, Kazuo (2000), "Why the Bank of Japan Won't Target Inflation," *Wall Street Journal*, March 6.

Williamson, John (2000), *Exchange Rate Regimes for Emerging Markets: Reviving the Intermediate Option*, Washington, D.C.: Institute for International Economics.