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The road to price stability in the 1990s

By Urban Bäckström
Urban Bäckström was Governor of the Riksbank 1994–2002.
This article was originally presented in Swedish earlier this year in *På jakt efter ett nytt ankare* (Hunting for a new anchor), edited by Lars Jonung, SNS Förlag, Stockholm.

"The Riksbank is currently the employees' best friend. The trade union economists who have been scolding the Riksbank for a decade have got it wrong," Dan Andersson, head economist at the Swedish Trade Union Confederation, explained early in 2001 (DN 19/1).

Here I feel we have a good indication of how the assessment of economic policy has changed. Things were very different a decade ago, when many critical voices were heard as Sweden slowly but surely set out on the long trek towards greater stability and better conditions for economic growth.

For valuable comments on earlier versions of this paper I am grateful to Villy Bergström, Anders Borg, Jörgen Eklund, Johan Gernandt, Lars Heikensten, Lars Jonung, Staffan Viotti and Anders Vredin.

A sustained effort for economic stability in Sweden in the 1990s has produced results.

A sustained effort for economic stability in Sweden in the 1990s has produced results. The decade after the profound crisis differs from the 1970s and 1980s in several respects. For one thing, inflation subsided to an average annual rate around 2 per cent, which is roughly in line with the rate in Sweden's main competitor countries and represents a marked reduction. In the 1970s and 1980s annual inflation had averaged 8 per cent. For another, GDP growth in the 1990s was somewhat stronger – at least after the steep economic decline in the early years had ceased – compared with the two preceding decades. Thirdly, both the rate of inflation and GDP growth have fluctuated less markedly. So in the 1990s the Swedish economy has not just been characterised by low inflation and relatively favourable growth compared with the 1970s and 1980s; it has also been more stable.

The immediate cause of the fall in the rate of inflation was the deep economic decline in the early 1990s. In such a situation it is not surprising that inflation decreases abruptly. An economic slowdown implies lower resource utilisation and that usually means that price increases also slacken. But inflation remained low even when the economy picked up again and growth rose. The stronger growth is partly explained by all the unutilised resources that were available after the profound crisis, so there

was no risk of rising activity leading to overheating. In addition, there are signs of some increase in the trend rate of growth, which suggests that the economy is functioning more efficiently. If that is the case, it may support the hypothesis that low and stable inflation makes the economy work better and generates somewhat higher GDP growth. One then has to ask what it was that enabled the Swedish economy to move in this direction.

Was the price stability objective, together with a flexible exchange rate, crucial in breaking the earlier inflationary development?

A natural question from my vantage point is whether Sweden's more stable economic trend has to do with the change of stabilisation policy regime that accompanied the move to a flexible exchange rate. Was it the inflation target or, as I prefer to call it, the objective of price stability [1] that, together with a flexible exchange rate, played a crucial part in breaking the inflationary development in the 1970s and 1980s? To me, such a reading is too limited.

A target as such does not guarantee that inflation remains low.

First let me note that a target as such does not guarantee that inflation remains low. Sweden's own record tells us that. The notion of targeting the rate of price increases was in fact launched as early as 1984 by the Social Democratic government of the day. The target was set at 4 per cent for the first year, with a tightening to 3 per cent for the next year. It was not a success: inflation was somewhere between 7 and 8 per cent in both years. At the same time, the American experience shows that a low and stable rate of price increases can be achieved without a numerical target for inflation.

Neither is a variable exchange rate a reliable recipe for achieving stability.

Neither does a variable exchange rate seem to be a reliable recipe for achieving stability. When Canada let its currency float back in the early 1970s, inflation in that decade and the 1980s was still about as high as in Sweden. A look at the Swedish experience over a longer period diminishes the role of the floating exchange rate even more. If we disregard the 1970s and 1980s, Sweden has a long tradition of low inflation even though its currency was tied to other currencies during most of the twentieth century. Other countries have likewise managed to combine low inflation with a fixed exchange rate system and they have done so even in the era of free cross-border capital flows. One example is Denmark, where inflation has been low and stable for almost two decades. Countries that now belong to the euro area also achieved price stability when they were participating in the European Exchange Rate Mechanism.

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[1] It is from my perspective as central bank governor in this period that I prefer to refer to the 2 per cent target as the price stability objective, instead of using the more customary term "inflation target". Inflation tends to have negative connotations, while stability is a more positive concept. Considering the various problems (quality aspects, etc.) normally associated with measuring the development of prices in an average basket of goods, I think that using the term price stability objective throughout this paper is defensible. Besides, in keeping with the Maastricht Treaty, "maintaining price stability" is the Riksbank's statutory objective.

So the reasons why Sweden was able to shift from a high to a low inflation regime are more complex than being just a combination of the price stability objective and a floating exchange rate. Basically, I believe it had to do with two things:

Two basic reasons helped Sweden to shift to a low inflation regime: a desire for economic stability through price stability and an awareness that this required political decisions.

- One was the emergence of a successively stronger desire among people in Sweden – as well as their representatives in parliament and government – for an economic development that is lastingly stable. Low, stable inflation was seen as a means of overcoming the abrupt shifts in output and employment that had left their mark on the 1970s, 1980s and early 1990s. Another wish was for an economy that functioned better.

- The other thing was a gradually growing awareness of the need for political decisions that would make such a development feasible. Talk, good intentions and proud declarations were all very well but what the situation called for was measures of an entirely different order. When two decades of interminable talks and discussions between various representatives of the Swedish economy had failed to make much progress in achieving a stable economic trend, the need for specific measures of economic policy was recognised more generally.

Sweden's progress to price stability has not been smooth. There was no master plan and not always a broad political consensus on what needed doing in each situation. It can be said that when the defence of the fixed exchange rate had to be abandoned and the krona was allowed to float, the task of stabilising the economy was transferred automatically to the Riksbank. If Sweden had continued to have a fixed exchange rate regime, then parliament and the government would have remained *directly* responsible for stabilisation policy. But the issue of whether stabilisation policy ought to be conducted via monetary policy was never discussed in detail. So despite differences of opinion, an arrangement took shape that ultimately worked fairly well.

From late 1992 the Riksbank was able to act independently, though this independent status was not enshrined in law until 1999.

During this period the Riksbank was able to act independently, though it was not until 1999 that this independent status was enshrined in law. Still, the decisions seemed to me to be rooted in internally generated proposals and analyses; in other words, there were no "orders" from the government. The new legislation in 1999 then made the Riksbank formally independent, with a clear function prescribed by parliament.

To many people, the independent status of the Riksbank was a controversial issue.

To many people, the independent status of the Riksbank – de facto at first, later de jure – was a controversial issue. It removes monetary policy from the ordinary political process and to some people this amounts to a loss of democracy. In this respect the 1990s clearly produced a new arrangement. A former finance minister, Kjell-Olof Feldt (1991), has described how in the 1980s monetary policy was discussed by members of the Cabinet, even though the formal decisions were taken by the Riksbank's Governing Board (normally chaired in those days by the finance ministry's under-secretary of state).

A more independent implementation of monetary policy in the 1990s had opponents in the trade union movement, among Social Democrats and in the Green and Left parties.

But what is so controversial about an independent central bank? As Villy Bergström (2001) points out, opponents of a more independent implementation of monetary policy in the 1990s were to be found in the trade union movement as well as among Social Democrats. To them one can add the Green Party and the Left Party, which voted against the bill enacting the Riksbank's formal independence in 1999. Bergström considers that the labour movement has not forgotten the days when representative government was introduced in a society where narrow elites had dominated parliament, constituted the government and ruled the Riksbank. In his opinion, the same reasons lie behind the labour movement's instinctive aversion to arrangements that can be said to curtail the will of the people, such as a constitutional court or other review of decisions taken by a political majority.

I believe that the opposition to central bank independence was also coloured by the discussion in the 1970s about the role of economic policy. One of the slogans at that time, "economic democracy", tended to be interpreted as meaning that the will of the people – expressed through representatives in parliament and government – should leave its mark on decisions about many details of economic life. A market economy, based as it is on decentralised decision-making outside the political assemblies, was perceived by many people as "undemocratic". Moreover, Keynesianism and the penchant for economic fine-tuning are deeply rooted in the Social Democratic party and do not tally with the idea of an independent central bank.

The Riksbank had actively promoted financial market deregulation in the 1980s; when subsequent developments resulted in a financial bubble, the Bank was taken to task.

It is also relevant that in the 1980s the Riksbank actively promoted the deregulation of financial markets and was responsible for some of the decisions this involved. So when subsequent developments resulted in a financial bubble that ultimately burst with devastating consequences, the Bank was taken to task. Another event that spotlighted the Riksbank was the defence of the krona in autumn 1992, when for some days the marginal interest rate was raised to 500 per cent and Sweden held out for longer than, for example, the United Kingdom. People then asked

whether the government and the Riksbank had gone too far, whether – since the defence failed – it was worth the high interest rate.

There is something to be said for each of these explanations of the opposition to the decentralisation of monetary policy decisions to the Riksbank. If a large section of the political system sees a problem in the delegation of such a major policy area as monetary policy, deciding to make the Riksbank independent will not be easy. The same applies if a greater degree of direct political influence is deemed desirable in more and more fields, or if political representatives consider that the Riksbank is doing a poor job. Seen from this angle, the political turnaround in the 1990s is all the more remarkable. Sweden's adherence to EU and the related necessity of giving central bank independence the force of law probably played a major part in bringing this about. At the same time, arrangements for formulating monetary policy at one remove from the daily party political discourse were on their way in many parts of the world.

Sweden's adherence to EU and the related necessity of central bank independence probably played a major part in bringing this about.

In the context of democracy, the Riksbank's enhanced independence amounts to a delegation of power to an agency of parliament and parliament is free to change the delegation's terms. So the Riksbank is indirectly controlled by the popular will and this has clearly left its mark on the Bank's practical work. For us at the Riksbank it has been a matter of gradually gaining the public's confidence by being as open as possible, prepared to account for our decisions and discuss the formulation of monetary policy. Gaining confidence is not just a question of ensuring that inflation stays around the 2 per cent target in the longer run. It also involves convincing people that the Riksbank works for a good economic development, possesses competence in the form of highly qualified personnel and takes its decisions in broadly based groups. Building up this sort of confidence takes a long time and is crucially a task for the Bank itself.

In the context of democracy, the Riksbank's enhanced independence amounts to a delegation of power to an agency of parliament.

The delegation of monetary policy is an interesting case in that similar arrangements might be adopted in other areas as a way of implementing a democratic assembly's general decisions. Sweden has a long tradition here. The judiciary is not the only precedent for the Riksbank's new status. Ever since Axel Oxenstierna's constitution was enacted in 1634, government agencies in Sweden have had a degree (albeit limited) of statutory independence. An elaboration of this tradition – formulating distinct objectives that are then monitored, and extending independence in various contexts – could make public decision-making in general more efficient.

This article contains my version of how the new stabilisation policy regime emerged and was administered in the 1990s, including the prob-

lems and difficulties the Riksbank encountered. First I shall briefly summarise the antecedents of the currency crisis and the early monetary policy. Then I shall show how the determination to establish price stability in Sweden grew. That is followed by a discussion of how the credibility of the stabilisation policy regime was established; it will be clear that the road to price stability was by no means straight-forward; a number of errors were made. The paper ends with some personal reflections and some conclusions for the future.

The worst crisis in memory

THE SERIOUS CRISIS

In the early 1990s the Swedish economy displayed all the symptoms of a crisis.

Experience shows that a country tends to encounter troublesome economic problems if it presents one of the following symptoms: an overvalued currency combined with a fixed exchange rate regime; high private sector debt combined with growing loan losses that threaten the stability of the financial system; or a growing central government deficit. In the early 1990s the Swedish economy had all three symptoms and the crisis was indeed profound.

A rapidly declining economy and an imploding banking system made Sweden extremely vulnerable when exchange rate turbulence hit much of Europe in the second half of 1992.

GDP fell sharply and unemployment shot up. The worst post-war depression was a fact. The loss of output, defined as the aggregate difference between trend growth and actual GDP, has been put at 13 percentage points.[2] The banks' non-performing loans exceeded their capital base, indicating that virtually the whole system could have collapsed.[3] In the summer and autumn of 1992, when much of Europe was being hit by exchange rate turbulence, Sweden's rapidly declining economy and imploding banking system made the country extremely vulnerable. If the banks had failed on a wide front, the economy might have landed in what Irving Fisher (1933) called debt deflation.[4] The crisis could then have been even more dramatic, resembling the recession and the bank crisis in the early 1920s, for instance, when GDP dropped by up to 20 per cent and the price level fell 30 per cent in the course of two years. A primary task for economic policy was therefore to maintain the financial system's stability.[5]

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2 See Table 26.2 in Fregart & Jonung (2003).

3 See e.g. Bäckström (1997).

4 For a more detailed discussion of my view of the Swedish crisis, see Bäckström (1993, 1998).

5 For a discussion of the bank crisis, its course and how it was handled, see Lundgren (1998). Bo Lundgren, leader of the Swedish Conservative Party in recent years, was at that time a cabinet minister with responsibility for banking matters.

Why the crisis occurred and was so dramatic is a complicated matter. A basic fact is that, following the collapse of the Bretton Woods system in the early 1970s, Sweden had not managed to establish a stable macroeconomic regime. Wage formation functioned badly, fiscal policy was weak and the krona was devalued repeatedly. Moreover, this unfavourable macroeconomic set-up was combined with structural problems, as was evident from, for example, tendencies to overheating and slack growth.

Why the crisis occurred and was so dramatic is a complicated matter.

A decisive cause of the crisis, or at least a major contribution to it, was the credit market's deregulation at the beginning of 1985. This was a necessary step in that the regulated credit market was one of the Swedish economy's structural problems; but it did generate a strong expansionary impulse that economic policy failed to counter. With the rapid expansion of credit, private sector debt grew in five years from 100 to 150 per cent of GDP. Equity and property prices shot up. A bubble was generated.

Credit market deregulation early in 1985 was a major cause of the crisis.

Demand growth in the real economy was high. Credit spending by households and firms outstripped current income. Private financial saving as a percentage of GDP dropped as much as 7 points and became negative. In addition to borrowing in Sweden, large loans were obtained abroad. With a higher interest rate in Sweden and the prospect of a stable exchange rate, it paid to obtain so-called basket loans via the Swedish banks. This stock of foreign liabilities grew to several hundred billion kronor in more or less short-term credit.

Demand growth in the real economy was high.

An overheated economy and higher price and wage levels than in other countries meant that Sweden had problems with competitiveness. Exports slackened. In time, when the inflated equity and property prices started to fall, firms and households were caught in a debt trap. This was followed by an abrupt weakening of domestic demand. Bankruptcies and the banks' loan losses rose. Uncertainty about the fixed exchange rate, which troubled those who had foreign loans, meant that many did what they could to repay the loans. This in turn generated large currency outflows and exerted pressure on the exchange rate. As the international currency markets were already turbulent and a number of fixed exchange rate regimes collapsed, the situation ultimately became untenable. On 19 November the Riksbank gave in and the krona began to float.

With an overheated economy and higher price and wage levels than elsewhere, Sweden had problems with competitiveness.

Why weren't the expansion of credit and the asset price rise checked much earlier? With the fixed exchange rate regime prior to 19 November 1992, monetary policy had to concentrate on maintaining the value of the krona. With such a regime, economic stabilisation is a matter for fiscal policy. Thus, in the late 1980s with the prevailing exchange rate regime, the Riksbank was not in a position to use the interest rate to check the growth of credit and thereby try to prevent or at least mitigate the serious

Sweden's fixed exchange rate regime prior to 19 November 1992 meant that economic stabilisation was a matter for fiscal policy.

setback that subsequently occurred. For various political reasons, fiscal policy was not as restrictive as it needed to be. It is surprising that in the second half of the 1980s there was no widespread discussion in Sweden about the need to adopt a flexible exchange rate and thereby have recourse to the interest rate as an instrument for checking the rapid expansion of credit. Here are two explanations for the lack of such a discussion.

At that time, international organisations, economists and central banks considered that a flexible exchange rate regime was not appropriate for small, open economies.

One is that in those days the prevailing view among international organisations (e.g the International Monetary Fund), economists and central banks was that a flexible exchange rate regime was not appropriate for small, open economies. Sudden exchange rate shifts would be a heavy blow to such economies and give rise to troublesome domestic shocks. They might be generated by, for example, a single large transaction such as the purchase or sale of a ship or aircraft or simply by a change of mood in the financial markets. It is interesting to note how markedly opinion has swung since then. Today, most observers are against a fixed exchange rate regime and its associated rigidities and tensions; instead, they strongly approve of the flexibility a flexible exchange rate confers. There is an important lesson here. Established opinions have changed quickly and may do so again. Considering the current herd behaviour in financial markets, it is not improbable that the flexible exchange rate may turn out to be a source of shocks in the future.

Hardly anyone could have foreseen the strength of credit growth after the deregulation of the credit market.

Another explanation is that hardly anyone could have foreseen the strength of credit growth after the deregulation of the credit market and still less that it would end in a serious crisis with no precedent since the 1920s and 1930s. In their youth, most of the older economists had studied Keynes and had hardly heard of earlier masters like Hayek and Haberler, who had taken great pains to understand and explain financial bubbles and crashes when capital movements were free. Keynes was interested in how an economy can be retrieved from a crisis once it has occurred, while Hayek and Haberler wanted to understand how an economy could get into serious problems in the first place.[6] The theories about financial crises were forgotten in the long period from the 1930s to the 1980s, when financial markets were strictly regulated in many countries and a serious financial crisis could not occur. That is why economists failed to realise that the credit growth Sweden experienced in the second half of the 1980s could lead to a serious crisis, but it did.

What should economic policy decision-makers do when such a crisis nevertheless occurs?

[6] For a discussion of Hayek and Haberler, see Bernard & Bisigano (2001).

At a general level, the first thing is to ensure that the banking system functions. If people lose their deposits in a regular banking crash, payments become impossible. If the credit facilities banks provide are disrupted, the economy will spiral down into a deep depression.

Those who decide economic policy should first ensure that the banking system functions.

The second thing is to bring interest rates down as soon as possible to assist the over-indebted and make the equity and property price fall less dramatic. In that way, as Hayek pointed out, the adjustment when a financial bubble has burst can be mitigated but not avoided entirely. When asset prices as well as borrowing by households and firms are unduly high, an adjustment has to be made sooner or later. What economic policy decision-makers can do is contribute what they can to making the process reasonably orderly.

The second thing is to bring interest rates down as soon as possible to assist the over-indebted and make the equity and property price fall less dramatic.

That was the background to the major effort that the government and opposition of the day invested in putting together a package for the stabilisation of the banking system in autumn 1992. The measures that were constructed to consolidate the government finances and improve the relative level of costs in the Swedish economy should also been included in this context since they aimed to stabilise confidence in the fixed exchange rate and thereby contribute to lower interest rates.

MY CRITICISM OF THE RIKSBANK AFTER THE KRONA FELL IN 1992

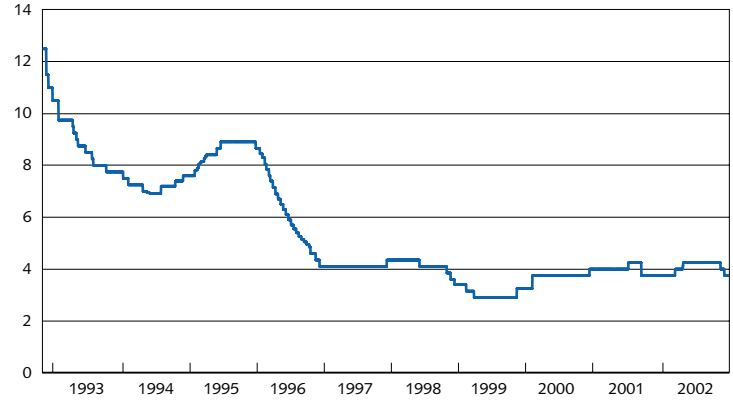
When the krona had fallen and the fixed exchange rate was no longer a restriction on monetary policy, I was critical (as a finance ministry undersecretary with no influence on the setting of the instrumental rate) of how the Riksbank conducted monetary policy. Immediately after the krona's fall, the Riksbank chose to keep the marginal rate as high as 12.5 per cent even though a serious financial melt-down was in progress. Subsequently the interest rate was lowered only slowly; it was still at a two-digit level after the turn of 1992 (see Figure 1).

Immediately after the krona's fall, the Riksbank chose to keep the marginal rate as high as 12.5 per cent even though a serious financial melt-down was in progress.

Perhaps I should recall that at this time Nordbanken and Första Sparbanken were already receiving state support, Gotabanken was on the verge of collapsing, while on 18 February 1993 the board of SE-Banken found it prudent to announce that "*the value of SE-Bank equity [is] at present uncertain*" and Föreningsbanken was approaching the agency the government had set up to handle the bank crisis. The large proportion of the banking system that was liable to fail was a sign of serious problems in the Swedish economy. The steep drop in GDP came mainly from falling household consumption and corporate investment and this in turn reflected a sharp swing in household and corporate saving: in the course of a few years, financial saving shifted by as much as 20 per cent of GDP.

At this time a large part of the banking system was threatening to collapse.

Figure 1. The Riksbank's instrumental rate (marginal/repo rate) from 20 November 1992 to end 2002
Per cent



Source: The Riksbank.

This had to do with high indebtedness and a steep price fall for loan collateral in the form of equity and real estate.

It was not just that households and firms stopped borrowing to finance consumption and investment. Many were in such difficulties that the only option was bankruptcy and the attendant losses for creditors. Domino effects meant that in the end these failures resulted in loan losses for the banks. In other words, the loan losses were a sign – the tip of the iceberg – of the situation's gravity. Much of this was a consequence of high indebtedness and a steep price fall for the equity and real estate that had served as collateral for the loans. The depressive path surprised economic observers at the time; no one knew just how massive the decline would be.

All this exploded in the form of a rapidly growing budget deficit.

The shock came essentially from the private sector's efforts to manage the consequences when the bubble burst. The lack of a sufficiently tight economic policy had lain behind the growth of the bubble in the 1980s. The shock in the early 1990s came from decreased consumption and a postponement of investment as those concerned tried to avoid bankruptcy. Some succeeded, others did not. The banks incurred increased loan losses but the domino effects went further than that. Given the bank guarantee and the government finances' vulnerability to variations in economic activity, all this exploded in the form of a rapidly growing budget deficit.[7]

The Riksbank chose to focus on the final effect, the mounting budget deficit.

To my mind, the Riksbank's analysis of the situation was too *narrow*, hence my critical opinion of interest rate policy after the krona's fall in November 1992. The Riksbank chose to concentrate on the final link in

[7] The bank guarantee, announced on 24 September 1992 by the four-party coalition government in consultation with the Social Democratic opposition, was an undertaking that the financial system's commitments would be met.

the chain of domino effects, namely the mounting budget deficit.[8] To avoid misunderstandings, I agree that the budget deficit was a major difficulty but it was not the drama's fundamental problem, which was that the bubble had burst.

For clarity's sake I should add that my view of monetary policy was not that the Riksbank ought to "assist" the government either politically or with the budget deficit. My concern was to avoid the risk of the economy actually collapsing and leading to genuine deflation. I believed then and still do that it is up to a central bank not only to try to avoid unduly high inflation but also to do what it can to avoid deflation.

A central bank should not only to try to avoid unduly high inflation but also to do what it can to avoid deflation.

A lower interest rate was needed in that the major part of the distressed loan stock was in the domestic currency. The same applied to real estate prices, which plummeted and were affected by the costs of financing at the prevailing interest rate. In my opinion, as long as the financial problems lasted, in the formation of monetary policy there was a case for attaching less importance to the exchange rate than was actually done. It can be added that although the Riksbank kept the interest rate relatively high, the exchange rate weakened sharply.[9] Moreover, experience shows that the interest rate relative to the rest of the world is only one of several factors that influence the exchange rate. Other considerations, such as the degree of stability in the financial system, may in some circumstances even outweigh the impact of the interest rate.

A lower interest rate was needed because most of the distressed loan stock was in the domestic currency.

Together with the bank minister, Bo Lundgren, I was deeply engaged in the banking system's problems, which were the last but one of the domino effects and were becoming worse and worse. So it was only natural to search for a deeper explanation of the drama. There was plenty of literature to consult, though much of it referred to conditions in the distant past.[10] The world had not experienced a really serious financial crisis for decades.

Today, ten years or so after the Swedish crisis, questions of this type are being focused and discussed much more, not least in such international organisations as the IMF, OECD and BIS, as well as by central banks in many parts of the world. Economists and decision-makers now have a more nuanced picture of different economic shocks.

Today, questions of this type are being focused and discussed much more.

An example is a recent study by economists at the US Federal Reserve, see Ahearne et al. (2002) in which some lessons from what happened in Japan in the 1980s and 1990s are discussed. The authors demonstrate the difficulty, when asset prices are falling steeply and debt

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8 This is confirmed by Dennis (2003) and Andersson (2003).

9 Experience with a flexible exchange rate in the 1990s also shows that variations in the krona's exchange rate have had less effect on the rate of inflation than was the case during the fixed exchange rate regime.

10 See e.g. the references in Bäckström (1993).

ratios are high, in judging and predicting a deflationary trend. This applies to both private and public economic observers, regardless of whether they are inside or outside the country in question. Not even the players in financial markets can be expected to succeed. From this the authors draw a clear conclusion for monetary policy: in such a situation, policy should not be based exclusively on a main scenario for resource utilisation and inflation but should also consider the risk of deflation and lower the interest rate as a preventive measure. If the central bank waits too long and deflation actually materialises, monetary policy will have become much less effective. This is an instance of recent studies in this field. I initiated a discussion about these matters early on but subsequent research and further experience around the world have made the picture still clearer. Financial aspects can have a lot to do with how economic activity develops. We need to learn even more about these phenomena.

The Riksbank's protracted interest rate cuts in late 1992 and early 1993 are commonly defended by arguing that a more aggressive line would have weakened monetary policy's credibility.

A common defence of the Riksbank's gradual and protracted interest rate cuts in late 1992 and early 1993 is that a more aggressive line would have weakened the credibility of monetary policy. The cut of 0.75 percentage points in February 1993, which generated uncertainty and turbulence in the market, is usually cited as an example. I would say instead that this cut generated unrest just because it came unexpectedly. Quick cuts had been ruled out in various statements by the Riksbank, so when a sizeable cut was made without warning, market players were disconcerted and wondered what had happened at the board meeting. That an alternative strategy would have been feasible in Sweden is evident from the Finnish and British examples, where the instrumental rates were lowered rapidly.

I know that Bengt Dennis, who was then Riksbank governor, was upset by my view of monetary policy, particularly as I was an undersecretary at the finance ministry. He took my proposal for a lower interest rate as political pressure. To me it was frustrating that a discussion of this type with the Riksbank was interpreted in that way. In my opinion, arguments must be tested in a discussion, instead of being rejected out of hand simply because they come from a politically appointed government official.

I should add, however, that it cannot have been easy, at the beginning of a new regime, to construct a sound internal process at the Riksbank that allowed for every aspect when determining the level of the instrumental rate. At that time there was still no proper intellectual framework that took both monetary and financial stability into account. It was more a question of trial and error.

My years at the Riksbank have taught me that a thorough intellectual framework for the conduct of monetary policy is also a help in that the Riksbank governor can discuss policy with the prime minister, other ministers, under-secretaries and members of parliament without feeling that their queries constitute "political pressure".

A thorough intellectual framework for monetary policy aids a discussion of the policy.

Fortunately, in the second half of 1993 the economic situation in Sweden calmed down, the bank sector became more stable and GDP growth picked up. The fears of deflation subsided. After the dramatic stage, it was the budget deficit and the unduly high expectations of long-term inflation in Sweden that came to the fore as perhaps the most important economic problems. That brings us up to spring 1994, by which time I had succeeded Bengt Dennis as governor of the Riksbank. Now it was my turn to be hauled over the coals but that, as I knew, was part of the job.

In the second half of 1993 the economic situation in Sweden calmed down.

A growing desire for price stability

When the Riksbank's governing board announced on Friday 15 January 1993 that the target for inflation was to be 2 per cent, it did not come like a bolt from the blue. No precise figure had been mentioned in the public discussion but there had been talk of the desirability of inflation in Sweden at what was called "a good European level". As I see it, the desire for and efforts to establish low and stable inflation had been growing for perhaps a decade, albeit without success. For Sweden, there was nothing new about such an ambition.

The governing board's announcement on 15 January 1993 that the target for inflation was to be 2 per cent did not come like a bolt from the blue.

What was new was the Riksbank's direct responsibility for fulfilling the target. Elsewhere, a similar target with a flexible exchange rate had already been used successfully for a time by New Zealand and Canada, while the United Kingdom, where sterling had begun to float somewhat earlier than the Swedish krona in autumn 1992, also decided to target inflation. So Sweden was in good company.

What was new was the Riksbank's direct responsibility for fulfilling the target.

The idea of focusing monetary policy on low inflation had been discussed almost a century earlier by Knut Wicksell.[11] He first presented his ideas to a Swedish public in a paper (based on pioneering work that had been published in German) he read at the Swedish Economic Society on 14 April 1898.

Just over thirty years later, when Sweden was obliged to come off the gold standard in September 1931, the Swedish government and the Riksbank, inspired by Wicksell, declared that the monetary policy objec-

[11] See Torsten Gårdlund (1958) for a fascinating biography of Wicksell, who is now recognised as one of Sweden's foremost political economists.

tive would be to use "every available means to maintain the Swedish krona's domestic purchasing power". In this way, the Riksbank was the first central bank to have price stabilisation as its explicit norm for monetary policy.

The new stabilisation policy regime had historical as well as international roots.

So the Riksbank's decision in January 1993 can be said to have rested on a sound Swedish tradition, all the more so when one considers that in the period from 1830 to 1970 the annual rate of inflation here had averaged about 2 per cent. The new stabilisation policy regime accordingly had historical as well as international roots.

Just over a decade before the Riksbank decided to target inflation in January 1993, the finance minister at that time, Kjell-Olof Feldt (1991), was considering the possibility of successive revaluations of the krona, which had just been devalued markedly. The 1982 devaluation was to be the last of its kind. This could be achieved, according to Feldt, by tying the krona to the German mark, which for a long time had been the anchor in the European Monetary System. Sweden would then be in a much better position to give price stability priority in economic policy.

Writing about the formation of economic policy around 1984, Feldt observed that:

> *In most of our main competitor countries the rate of inflation was now down to 4 per cent or less. In our opinion, the success of the Third Way depended on Sweden following that trend.*[12]

The notion of an inflation target was launched for 1984 by the Social Democrat government of the day.

The notion of an inflation target was launched for 1984 by the Social Democrat government of the day. The ambition was to bring the rate of price increases down to 4 per cent and then aim for 3 per cent for 1985. But instead of using effective measures of economic policy, the problem was to be tackled administratively. The steps taken by the government included a price and rent freeze, withdrawal of liquidity and a moratorium on increased share dividends. Talks were also held with the labour market organisations with a view to keeping wage costs down. In the late 1980s, deliberations with the labour market organisations were also to be a primary means of restraining wage and price increases.

The goal of keeping price and wage increases down and establishing low, stable inflation was not achieved.

Today we can see what happened in the 1980s. The goal of keeping price and wage increases down and establishing low, stable inflation was not achieved. Annual inflation averaged 8 per cent in that decade, which ended with serious overheating and a speculative bubble. But although Kjell-Olof Feldt in his capacity as finance minister did not succeed, the will

[12] Feldt (1991).

and ambition to restrict inflation existed at that time. So in that perspective the Riksbank's decision in January 1993 was not a new departure. The problem in the 1980s was that for various reasons the available economic policy measures that might have helped could not be used. Inflation could not be regulated away or even banned by administrative means and a price freeze.

The 1991 Budget Statement identified inflation as stabilisation policy's central problem.

The next important step in altering the conditions for Swedish economic policy's efforts to achieve price stability was probably the process that began in autumn 1990 with a view to becoming a member of what was then the European Community (EC), now the European Union. Another major step came a little later, when the 1991 Budget Statement identified inflation as the central problem for stabilisation policy:

> *In order to safeguard employment and welfare, the full thrust of economic policy in the coming years must aim for a lasting reduction of inflation. This task must have precedence over other ambitions and demands.*[13]

In a ranking of economic policy goals, combating inflation was now at the top.

The expression "precedence over other ambitions and demands" presumably meant that in a ranking of economic policy goals, combating inflation was now at the top. This strong and distinct political trend was underpinned by two further measures:

Firstly, an inquiry was set up with a view to reinforcing the status of the Riksbank.

One was the appointment – before the Budget Statement had been published – of a committee of inquiry with a view to reinforcing the status of the Riksbank.[14] Measures taken in the late 1980s had admittedly strengthened the Riksbank to some extent but they were not nearly as far-reaching as those mentioned in the new committee's terms of reference.

Secondly, the Riksbank on 17 May 1991 decided to peg the krona to the ecu.

The other measure was the Riksbank's decision, with strong political backing, on 17 May 1991 to peg the Swedish krona to the ecu, the European currency unit which preceded the euro. The Riksbank and the political system saw this as a move towards the EC and the European Exchange Rate Mechanism (ERM).

The stronger focus on price stability, the priority given to this objective in economic policy, the desire to strengthen the Riksbank and to link monetary policy more firmly to the strong D-mark block are all evidence of a clear political ambition for stabilisation policy.

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[13] Government bill 1990/91:100, annex 1, p. 4.

[14] The committee was subsequently given a more political composition under Lars Tobisson (C) and published its report on 19 February 1993 (SOU 1993:20).

The currency market turbulence in 1992 gave both the Swedish government and the opposition the feeling that a decisive moment had come in the fight against inflation.

When the foreign exchange market became turbulent in the autumn of 1992 – after the Danes had rejected the Maastricht Treaty in a referendum in June – both the Swedish government and the opposition felt that a decisive moment had come in the fight against inflation. After all that had gone before, the time had come to stick to the overriding principle that economic policy's primary goal was price stability. That had, after all, been Sweden's line for many years and it had contributed to good growth and stability in output and employment, at least before the 1970s and 1980s, two unfortunate decades when inflation had shot up and the krona had been devalued a number of times.

This is the historical perspective in which the defence of the krona should be seen, as well as all the crisis packages and the formulation of the inflation target in January 1993.[15]

The price stability objective

Here are the key passages in the governing board's press notice on 15 January 1993:

> *In both 1993 and 1994 monetary policy will focus on preventing … an increase in the underlying rate of inflation. … as of 1995 the change in the consumer price index is to be limited to 2 per cent, with a tolerance of ±1 percentage point.*

Major components of a new monetary policy regime were presented after less than two months.

Even though it was less than two months since the krona had begun to float in November 1992, major components of a new monetary policy regime were already in place. The formulation of the target was the fruit of a brief but intense effort at the Riksbank, or so it seemed to me from the outside. At that time, only two other open economies – New Zealand and Canada – had any experience of a regime that combined a price stability objective with a flexible exchange rate. By focusing on underlying inflation, the Riksbank made an exception for 1993 and 1994 because the krona's depreciation was expected to give rise to a transient increase in CPI inflation.

Time did not permit a thorough appraisal of the objective's formulation or of how monetary policy should react to shocks that were judged to be transitory.

There was not enough time for a thorough appraisal of the objective's formulation or of how monetary policy should react if the economy were to be exposed to shocks that were not judged to be permanent. These were matters the Riksbank had to work on in the coming years, see Andersson (2003). It came to be seen that CPI inflation can be pushed up

[15] For an interpretation of the process, see Jonung (1999).

or down by changes in interest expenditure, indirect taxes and subsidies or by other transient shocks that may not necessarily lead to a more permanent change in the inflation process. Under such circumstances there may be a case for taking transient shocks into account in the formation and subsequent evaluation of monetary policy. But this must be made clear in advance by the Riksbank so that the basis for monetary policy is evident (see the article by Lars Heikensten in this issue).

As an example we can take house mortgage rates, which are included in the CPI, where they have the disadvantage of tending to make monetary policy pro-cyclical. When inflation is forecast to be below the targeted rate, the normal response is to lower the repo rate but this has the effect of drawing mortgage rates down and that in turn gives a further drop in CPI inflation, which could be seen as motivating another repo rate cut. Conversely, a repo rate increase when inflation is forecast to exceed the target can lead per se to further increases in that house mortgage rates move up and with them inflation.

In this way monetary policy would, as it were, chase its own tail. As interest rates usually rise in an upward economic phase and fall during a slowdown, an index of inflation that includes interest expenditure tends to accentuate the shifts in inflation. Invariably basing monetary policy on the CPI would therefore also lead to the real economy fluctuating even more. Over a complete business cycle the variations in the interest expenditure component of the CPI normally cancel out.

Questions of this type featured prominently in the public debate in the mid 1990s. The Riksbank produced alternative indexes of underlying inflation that allowed for different transitory effects and published them in the Inflation Report. Early in 1996 we also began to discuss the problem in public. At Kjell-Olof Feldt's suggestion, we then asked Statistics Sweden to publish indexes of underlying inflation in connection with the monthly presentation of the CPI. At the beginning of February 1999 the new governing board adopted a formal clarification of the inflation target, codifying the practice that had been followed for a number of years.[16]

It took time to give the inflation target its present more precise and flexible formulation.

The quick action when the price stability objective was adopted at the beginning of 1993 was accordingly followed by a long period before the inflation target acquired its present more precise and flexible formulation. These issues require a lot of thought and hard work.

There were widespread doubts about the target and whether it could be met.

At first there were widespread doubts about the target and whether it could be met. The question was not just whether the target was feasible but also whether having such a target was advisable, whether 2 per cent

[16] Separate minutes of the Board meeting on 4 February 1999.

was a reasonable level and what the consequences of the target would be for the real economy.

Today it is widely agreed that low, stable inflation is important for achieving permanently high GDP growth.

Today it is widely agreed that low and stable inflation is in fact important for achieving permanently high GDP growth, as well as for avoiding unnecessary fluctuations in economic activity. The advantages of a low-inflation regime are also more apparent in that the economy is working better. After a time, the target has gained broad support.

A price stability objective aims to stabilise and pin down the expectations of economic agents.

A nominal anchor – in this case a price stability objective – ultimately aims to stabilise and pin down the expectations of economic agents. The idea behind the announcement of a distinct target is that it steers expectations towards a certain level of inflation and thereby influences price and wage setting. The more credible the target, the more prone will economic agents be to adjust their own decisions about prices and costs to inflation's targeted level. This means that, all else equal, once credibility has been established, the central bank can wield its interest weapon more leniently.

THREE YEARS BEFORE THE GOVERNMENT SUPPORTED THE TARGET

The government was well aware that the price stability objective was being adopted.

As I have indicated, the price stability objective was adopted by the Riksbank's governing board. At that time, seven of the board's eight members were appointed in relation to parliament's current political composition, so presumably the target was acceptable to the parties' parliamentary groups.[17] Moreover, the law at that time required the Riksbank to consult with the government before taking major decisions, so the government was well aware of what was happening.

But in the early years the government did not explicitly underwrite the target's exact definition.

Still, in budget statements in the early years neither the four-party non-Socialist coalition government nor the succeeding Social Democratic government *explicitly* underwrote the exact definition of the inflation target, though the prime minister and some cabinet members did make supportive statements. No such support was provided in the budget statements, which in Sweden are a government's primary economic policy document; they contained some rather general wording about the importance of economic policy being focused on price stability and stated that "the Riksbank has chosen to define" this as limiting inflation to 2 per cent ±1 percentage point. That could be interpreted as meaning that the price stability objective was a matter for the Riksbank, not something the governments in question supported directly, at least explicitly in their primary

[17] The legislation at that time prescribed that the eighth board member was to be appointed, as governor of the Riksbank, by the seven members selected by parliament.

policy document. Such support was not forthcoming either from the government headed by Carl Bildt or from the one that Ingvar Carlsson formed after the general election in 1994.

The situation changed, however, in April 1996, when Erik Åsbrink, the new finance minister in the government formed by Göran Persson, added the following sentence to the standardised text in the budget statement's section on monetary policy: "The Government supports this direction of monetary policy". The target then ceased to be just an invention of the Riksbank, albeit with the political support that the governing board represented, and became an objective the government embraced directly and explicitly, so that it also guided fiscal policy. Since then the new sentence has been a standing feature of budget statements.

In April 1996 the government directly and explicitly embraced the target, so that it also guided fiscal policy.

Credibility bit by bit

THE RIKSBANK DIRECTLY ACCOUNTABLE FOR STABILISATION POLICY

When the krona was left to float at 2.28 p.m. on 19 November 1992, the direct responsibility for achieving price stability was transferred at a stroke from the government and its finance ministry to the Riksbank. With a fixed exchange rate regime, monetary policy is conditioned by currency flows. A flexible exchange rate makes it possible for the central bank to use the interest rate to influence inflation. Provided people's expectations of long-term inflation are anchored to the target, the central bank aims for the economy to develop in line with the long-term sustainable trend. In that way, inflation is held stably around the target. Although the approach to stabilisation policy was entirely new, there was not much public discussion of the shift in accountability from the government to the Riksbank; the only exception was the 1993 Riksbank Inquiry (SOU, 1993:20), of which more later. This may seem remarkable in that the Riksbank had had this function only once before, during a brief period in the early 1930s.

When the krona was left to float, responsibility for price stability was transferred from the government to the Riksbank.

What conclusions were the political system prepared to draw as regards this new function for the Riksbank and the experience of stabilisation policy in the 1980s? How would conditions be created to put the Riksbank in a position to make the decisions that a continuous fulfilment of the target required?

NO FORMAL REINFORCEMENT OF THE RIKSBANK …

The Riksbank Inquiry's report was presented little more than a month after the price stability objective had been announced.

An inquiry had been working since 1990 on an analysis of the Riksbank's status and was required to propose a "*clear and appropriate framework for monetary policy*". This Riksbank Inquiry, as it called itself, presented its report[18] on 19 February 1993, little more than a month after the price stability objective had been announced. However, two Social Democrat members of the Inquiry entered reservations against the majority report and preferred to postpone changes in the Riksbank's status on the grounds that the Bank's independence had been enhanced by changes that had been made in the late 1980s. The lack of broad political support meant that nothing was done immediately that could have strengthened the Riksbank's formal status and made it easier to fulfil the new price stability objective. It took six more years for such a reform to come into force on 1 January 1999.

Moreover, as mentioned earlier, there was no explicit government support for the price stability objective. Two more circumstances also gave the new stabilisation policy regime a fragile foundation initially. One was the weak support for the new Riksbank governor and the other was a difference on party lines in the governing board's view of monetary policy.

… AND WEAK SUPPORT INITIALLY FOR THE RIKSBANK'S MANAGEMENT

On 3 November 1993 seven board members assembled for an extraordinary meeting, the sole item being "Election of Riksbank governor".

On 3 November 1993 seven of the governing board's members assembled for an extraordinary meeting with a single item on the agenda: "election of Riksbank governor". The eighth member, the current governor Bengt Dennis, was not present because he had announced that he was not available for re-election when his mandate expired at the end of 1993 and the statutes at the time prescribed that the governor does not participate in the appointment of a successor.

The board appointed me to be Riksbank governor for the period 1994–98; the Social Democrat minority chose to enter a reservation.

On this occasion the board appointed me to be the new Riksbank governor for the period 1994–98. But the decision was not unanimous; the Social Democrat minority chose to enter a reservation without any motivation in the minutes. A fortnight later, in an article in the daily newspaper Svenska Dagbladet,[19] Jan Bergqvist, one of this minority and a member of parliament, described the new governor the majority had elected as a "junior" person and "inferior" to other candidates. But he did state that the Social Democrat board members would not make coop-

[18] SOU 1993:20.
[19] Bergqvist (1993).

eration difficult and pointed out that constructive discussions about the work of the Riksbank had been initiated.

I found this reservation extremely dreary, partly because the criticism concerned my person but also in that the political system had failed to pull together in such a sensitive situation. The board chairman at the time, Staffan Burenstam Linder, had warned me before the meeting that a Social Democrat reservation could not be ruled out and I remember we had both still hoped that the threat would not be carried out, but it was.

This lack of unanimity naturally weakened the Riksbank at a time when it needed to be strong. But there was nothing for it but to aim for a constructive dialogue with the board members in order to achieve as good a working atmosphere as possible in the Bank's highest decision-making body.

The lack of unanimity naturally weakened the Riksbank at a time when it needed to be strong.

THE FIRST TEST OF THE TARGET

The Riksbank's first interest rate increase after the introduction of the inflation target came in August 1994. The decision was a tough one and was severely criticised from some quarters. That it came just a month before a general election made matters worse. The Trade Union Confederation's senior economist, P.O. Edin, declared: "And all this to raise the interest rate to combat an inflation that doesn't exist".

The Riksbank's first interest rate increase with the inflation target came in August 1994 and was severely criticised from some quarters.

The Riksbank's case for the increase was that the target was threatened by incipient inflationary tendencies. Inflation forecasts by market agents were a good bit above the 2 per cent target and so were the Bank's own forecasts. Moreover, indicators of various types pointed to long-term inflation expectations above 4 per cent. So as economic activity improved and resource utilisation rose, inflation would move up to this anticipated long-term level. At the same time, the problems in the banking sector had become less pronounced. To my mind, there was no point in waiting.

Whether or not the exact timing of this first increase was appropriate is, of course, debatable. It may also be asked, as I discussed earlier, whether the Riksbank had given the financial market players a sufficiently clear indication that an increase was on the way after the summer. The aim of keeping in touch with the market in interest rate policy was actually a lesson I pointed to in the discussion that followed the increase in August 1994.

Keeping in touch with the market in interest rate policy was a lesson I mentioned in the discussion after the increase in August 1994.

Getting the governing board unanimously to accept the proposal for this first interest increase turned out to be complicated. It would have been possible for me as governor to decide on my own: in the new system for interest rate control that had been decided that June, the right to

set the repo rate had been delegated to the governor after the guidelines had been "cleared with the governing board". On the other hand, the corridor confining the repo rate was to be set by the board. So, realising that my decision would be controversial, I found it natural to ask the board to adopt a position on changing the corridor as well. Moreover, as a further repo rate increase would probably be called for during the autumn, there were reasons for signalling this to the financial markets.

The board's non-Socialist majority accepted my proposal to raise the instrumental rate but the Social Democrat minority entered a reservation.

The board's non-Socialist majority accepted my proposal to raise the instrumental rate but the Social Democrat minority voted against and entered a reservation. On the previous day the board had held a preparatory informal meeting for extensive presentations and a proper discussion; nothing had been said that evening about the outcome but next morning it was clear that there would be a minority reservation.

Considering the Riksbank's present system and the differences of opinion that occur from time to time in the executive board, it is perhaps hardly surprising that the Social Democrat members made a different assessment and were doubtful about a repo rate increase. As the present system shows, different people can have somewhat different opinions about the risks of inflation and about when the Riksbank should act.

The minority agreed with the Riksbank's management that measures were needed to improve conditions for price stability but did not consider they should take the form of interest rate increases.

However, the difference between the Social Democrat reservation on that occasion and the reservations that are made today lies in the written motivation. This states that the minority actually shared the opinion expressed by the Riksbank's management – that measures were needed to create better conditions for price stability – but did not consider that they should take the form of interest rate increases, pointing instead to "alternative measures" within the framework of "overall economic policy". What those "alternative measures" were to be is not clear from the minutes.

I find it extraordinary that the Social Democrats on the board shared the majority's concern about rising inflation yet were not prepared to use the available instrument – the interest rate – to attain the objective the board itself had assigned to the Riksbank. Perhaps it is an exaggeration to say that their motivation was partly reminiscent of the 1980s and the inability at that time to take awkward decisions. What I have in mind is the years 1984–85 when the Social Democrat government targeted inflation, as well as the pronounced overheating at the end of the decade; the Social Democrats were not prepared to implement the measures of economic policy the target called for. A more reasonable explanation for the reservation may be that the Social Democrat minority thought that extensive fiscal measures were a better alternative.

NOT SURPRISING THAT MANY WERE DOUBTFUL

There was a risk of the new stabilisation regime being short-lived.

The period with a price stability objective accordingly got off to a tentative start. Without proper support for the target, without a more explicit formal independence, without broad support from the Riksbank's governing board and without agreement that the interest rate was the instrument to use to fulfil the target, there was a risk of the new stabilisation regime being short-lived. In addition, the Riksbank was obliged to put up with the drawback for monetary policy that lay in the large budget deficit. The non-Socialist coalition government had admittedly taken some steps towards consolidating the government finances but in spring 1994 this work lacked credibility on account of party-political disputes about the importance of concrete measures to reduce the deficit.

Many players in the financial markets felt that the government's measures were not sufficient and that the Social Democrats – who were ahead in the opinion polls on the coming general election – were unlikely to be active enough if they did take over. The public discussion and the motions that had been tabled in parliament suggested, in fact, that the Social Democrats were opposed to an active consolidation of the government finances. In August 1994, a few weeks before the election, matters did, however, change to some extent in that the Social Democrats proposed a number of measures for strengthening the budget.

Against this background, it is hardly surprising that many people doubted whether a low-inflation regime could actually be established in Sweden at that time. It could have gone either way.

Crucial change for stabilisation policy after autumn 1994

BROADER SUPPORT FOR THE RIKSBANK

An aim of the new Riksbank legislation – that the post of governor should not be a matter for party politics – won the day a second time.

When the Social Democrats won the election in September 1994, the composition of the Riksbank's governing board changed accordingly; in view of the reservation the previous autumn, there was speculation as to whether a new governor would be appointed. For the second time in a row, however, one of the aims of the new Riksbank legislation from the late 1980s – that the post of governor should not be a matter for party politics – won the day and I soldiered on, just as Bengt Dennis had done in 1991.

RIKSBANK STRENGTHENED BY THE NEW BOARD

The new board had a strong composition; having such experienced and knowledgeable colleagues was a great help.

Moreover, the board's new chairman was to be Kjell-Olof Feldt, the former finance minister who had endeavoured to use economic policy to tackle inflation in the 1980s and even resigned when his efforts were thwarted. As the Social Democrat chairman, his appointment was greatly appreciated among savers and investors in the market. The board's composition was also strong, with Bengt Westerberg from the Liberal Party as vice chairman, and, from the Conservatives, Johan Gernandt, already a member for many years, and Ingegärd Troedsson, parliament's former speaker. Together with the other members, they gave the Riksbank the strength it needed to succeed in its work. We were able to have rather forthright, lively and thorough discussions about economic developments and the risks of inflation; for me as governor it was, of course, a great help to have such an experienced and knowledgeable board.

In autumn 1994 I and, no doubt, many others could only conclude that the new government's measures and its majority in parliament heralded a serious intent to direct economic policy for low and stable inflation. The support also had a broader base in parliament. The Social Democrats accordingly signalled a different economic policy from the one they had advocated in opposition.

INTEREST RATE INCREASES CONTINUED

The interest rate decisions by the new governing board were always unanimous.

The reservation against the interest rate increase in August 1994 turned out to be a one-off affair. In its interest rate decisions, the new governing board after the general election in autumn 1994 was always unanimous. Our consensus about the role of the Riksbank and how monetary policy should be used and conducted was naturally an advantage for monetary policy. We certainly had many lengthy discussions, deliberated a good deal about the best way of handling the instrumental rate and listened to different views around the table; but there was only one occasion – before the change to a new organisation at the beginning of 1999 – when a member entered a reservation against a particular decision.

The unanimity indicated that members wished to show a united front to the outside world.

I do not believe our unanimity meant that every decision was considered to be self-evident and uncontroversial; it was rather that the members wished to demonstrate a united front on monetary policy to the outside world. There was a risk of divergent opinions and reservations being interpreted as party politics, which might undermine confidence in the policy as a whole. Today, with the new composition of the Riksbank's executive board, differences of opinion are perceived more as personal assessments, uncoloured by party politics.

During autumn 1994 and the following spring the Riksbank continued to raise the interest rate a number of times, by a total of about 2 percentage points (Figure 1, page 14). Raising the level from just under 7 per cent to almost 9 per cent was not particularly dramatic and left the rate a good bit below the levels in autumn 1992. By today's standards the levels may, of course, seem high and our measures elicited strong protests.

In autumn 1994 and the following spring the Riksbank continued to raise the interest rate, by a total of about 2 percentage points.

Looking back, I still think it was reasonable to tighten the monetary stance at that time. Inflation expectations, the outcome of wage negotiations in spring 1995 and other indicators all pointed to an increase in inflation. I believe that what was ultimately at stake was the credibility of monetary policy's objective and the Riksbank's new function as the agency that is to "maintain price stability" (to quote the formulation in the amended Riksbank Act).

I still think it was reasonable to tighten the monetary stance at that time.

CONSOLIDATION OF THE GOVERNMENT FINANCES

The government budget became an acute problem after the crisis in the early 1990s. The deficit peaked at around 12 per cent of GDP and the trend was not sustainable. This undermined confidence in the long-term commitment to price stability, creating difficulties for the Riksbank. Reversing the trend was clearly a major challenge for the political system. The non-Socialist coalition government had initiated a consolidation and after the 1994 election the new Social Democrat government continued the work. The semi-annual monitoring, which was an innovation, made it seem more likely that the consolidation would actually be achieved. Confidence was also enhanced by the reform of the budget process, which included a targeted surplus and a spending ceiling.

The non-Socialist coalition had initiated a consolidation and after the 1994 election the new Social Democrat government continued the work.

The turning-point for confidence in Swedish economic policy came in connection with a symposium arranged in Jackson Hole by the Federal Reserve Bank of Kansas City in August 1995 and attended by Göran Persson, who was then Sweden's finance minister.[20] The symposium was an annual event that attracted people from central banks around the world, leading scholars in the chosen topics and a number of specially invited financial players. Persson was invited that year to discuss the consolidation of fiscal policy from a political perspective. His address went home to such an extent (the audience included representatives for some of the world's leading financial newspapers and periodicals) that the picture of Sweden was reappraised:

Confidence in Swedish economic policy turned upwards in connection with remarks by Sweden's finance minister at the Jackson Hole symposium in August 1995.

[20] Persson (1995).

Honesty toward the citizens – never play down the effects of the measures. Honesty toward the market – never try to fool anybody by using gimmicks or book-keeping tricks.[21]

Sweden, "a success story", having coped with a serious bank crisis and started to tackle difficult budget problems.

Sweden began to be seen as a "success story", having coped with a serious bank crisis and also started to tackle the difficult budget problems. So in autumn 1995 most things went our way and led in time to a marked monetary policy easing. In the course of 1996 the Riksbank was able to lower the instrumental rate to levels that Sweden had not known since the 1960s. As a result, market interest rates also fell across the entire yield curve. Monetary policy could now act in an atmosphere of notably improved credibility for economic policy's overall commitment to price stability.

WIDESPREAD CRITICISM OF THE UPWARD INTEREST RATE PHASE

The Riksbank held the repo rate at almost 9 per cent up to the beginning of January 1996.

The series of interest rate hikes from 1994 up to the end of 1995 (Figure 1, page 14) caused a good deal of disappointment, not least after many troublesome political decisions had been taken on fiscal policy. The Riksbank held the repo rate at almost 9 per cent up to the beginning of January 1996, which was more than six months after parliament had approved major items of fiscal consolidation in June 1995. More and more leading politicians began to ask themselves which reality the Riksbank was living in and analysing. Considering the degree of fiscal consolidation and the political pressure the far-reaching measures was generating, their frustration is understandable. At the Riksbank, however, we were seriously engaged in establishing a consistent approach to monetary policy and wanted to be absolutely certain of fulfilling the target. This intellectual framework is now generally recognised.

Waiting and seeing may be advisable when matters are changing so fast.

The situation in autumn 1995 was such that the Riksbank judged that inflation would exceed the target. By itself, the forecast implied that the repo rate ought to have been raised, rather than the cut our critics called for. A look at the expectations of other forecasters shows that they did not differ from the Riksbank's at that time. What prompted us to refrain from a further repo rate increase was the ongoing reinforcement of confidence in permanent price stability, particularly during that autumn. Waiting and seeing may be advisable when matters are changing so fast and we decided accordingly. In January 1996 the interest rate began to be lowered.

[21] Persson (1997).

The disappointment was widespread and we were criticised in various places and ways for waiting so long. I should like to enlarge on the rather narrow picture that is sometimes painted of this phase in monetary policy.

An evaluation of monetary policy in 1996–98 was undertaken by the parliamentary finance committee in 1999.

In view of the new, independent status the Riksbank had acquired through the legislation that came into force at the beginning of 1999, in that year the parliamentary finance committee undertook an evaluation of monetary policy in the period 1996–98. In that the political system had delegated certain functions to the central bank, I find such an evaluation natural. A delegation entails a need for a regular examination of how the task is being performed and whether the goal has been fulfilled. This presupposes that such an evaluation is done impartially.

The committee, which was not unanimous, considered that the Riksbank had missed the target and that monetary policy had been too tight.

The problem with this first "evaluation" was that its formulation suggested that the intention right from the start was to criticise the Riksbank. The committee was not unanimous in its conclusions, which may indicate that it was more a question of supporting pre-determined notions than of producing an unprejudiced assessment. The gist of the criticism was that the Riksbank had missed the target and that monetary policy had been too tight.

So how close did the Riksbank come to the price stability target in this period? The outcome was well inside the tolerance interval.

The criticism from the committee's majority, for instance of the interest rate cycle 1994–96, was so serious that the leading figures in the Riksbank and its governing board raised the question of whether the task of maintaining price stability should be played down. In our opinion, during these years the Riksbank had been consistent in its repo rate decisions. So how close did the Riksbank come to the price stability target in this period? When allowance is made for the fact that the sizeable lowering of the repo rate had affected the CPI via house mortgage interest expenditure, the outcome was well inside the tolerance interval. We found it hard to understand what we were being criticised for.[22]

The government subsequently adhered to the committee's criticism.

The government subsequently adhered to the committee's criticism. An evaluation of economic policy in the 1990s in the 2001 Spring Bill[23] states that "in retrospect it can thus be noted that monetary policy in 1994 and 1995 was tighter than would have been required to fulfil the 2 per cent inflation target in 1996 and 1997". As I have indicated, that was not how we saw it.

The problem is not that the Riksbank was criticised so much as that the criticism was unfounded. Tendentious evaluations of that type raise questions about the authors' intentions; in the worst case they may undermine the credibility of monetary policy's prescribed price stability

[22] See Feldt et al. (1999).
[23] Government bill 2000/01:100, annex 5.

objective. Considering Sweden's history of inflation and the ambitious goals that have been formulated on several occasions without being underpinned with concrete measures of economic policy, statements by the political system need to be clear. And not just clear at times, but consistently.

The Riksbank is made more independent

The notion of a more independent central bank surfaced again in the mid 1990s.

A working group to draft proposals for a more independent central bank had been set up by the government at the beginning of the 1990s but nothing had come of it. The idea surfaced again in the middle of the decade, probably in connection with Sweden's new EU membership and the central bank legislation required by the Maastricht Treaty even for countries that are not ERM participants. A stable parliamentary majority, consisting of five parties (Centre, Christian Democrat, Conservative, Liberal, and Social Democrat) supported the proposals, which required amendments to the constitution. The new laws became effective at the beginning of 1999, six years after the Riksbank had been given a new function in Swedish stabilisation policy.

Another question during the reform of the Riksbank's status was the responsibility for foreign exchange policy.

Another question that came up during the reform of the Riksbank's status was the responsibility for foreign exchange policy. At first the government considered the possibility of taking over the *full* responsibility from the Riksbank. The 1995 Autumn Bill had already noted that foreign exchange issues were decided by the government in several other EU countries and observed that the Swedish procedure "could complicate cooperation with other countries".[24] An inquiry was set up under Pierre Vinde, who had previously been an under-secretary, chairman of the Riksbank's governing board and deputy director-general of the OECD.

However, monetary policy and exchange rate policy are two sides of the same coin. A repo rate increase can always be neutralised, as it were, if it is accompanied by an equivalent weakening of the exchange rate. This is particularly the case in a small, open economy. A government with a formal right to decide exchange rate policy is also in a position to influence monetary policy – a dual command. That would weaken the central bank's responsibility for the price stability objective. The Riksbank pointed this out but to no avail; Vinde's report proposed that all aspects of foreign exchange policy should be transferred to the government.

[24] Government bill 1995/96: 25.

Fortunately, the idea was shelved and instead the government shared the responsibility with the Riksbank. Responsibility for the exchange rate regime (whether the exchange rate is to be fixed or flexible) was transferred to the government, while the Riksbank continued to be accountable for the implementation of the policy, e.g. determine the level of the exchange rate if the krona is linked to another currency or currency basket. This avoided the risk of a dual command.

The report proposed transferring all aspects of foreign exchange policy to the government. Instead, the government shared the responsibility with the Riksbank.

So on 1 January 1999 the Riksbank acquired an independent status even in a formal sense. On the whole, I am in favour of the legislation, which has been and will continue to be a strong support for the Riksbank's ability to focus monetary policy on low and stable inflation. Confidence in price stability seems to have been high already but the statutory changes enhanced it still more; long-term interest rates fell and surveys pointed to lower inflation expectations.

On 1 January 1999 the Riksbank acquired an independent status even in a formal sense.

To some people, the new law places the Riksbank outside democratic control, making it "unaccountable". My line has been to point out that the law enables parliament to *delegate* functions to its *own agency*, the central bank, to undertake monetary policy independently in accordance with the framework prescribed by the elected body. It is always possible to revoke the delegation or change monetary policy's framework. That would be done by amending the law in a public process, not by issuing instructions privately. Moreover, the new general council has continuous insight into the work of the executive board in that its chairman and vice chairman may attend board meetings. The council also monitors the performance of board members and questions them at its meetings. So the Riksbank is not unaccountable in the sense of being beyond the reach of the political process but rather independent.

The law enables parliament to delegate functions to its own agency, the central bank, to undertake monetary policy independently within the framework prescribed by the elected body.

Still, an item that appears to remain on the political agenda is how the responsibility for foreign exchange policy is to be handled in practice. The new law is unambiguous: the government, as I mentioned, decides the exchange rate regime in Sweden and the Riksbank is accountable for its implementation.

The government decides the exchange rate regime in Sweden and the Riksbank is accountable for its implementation.

In recent years, however, some steps have been taken that seem to question this arrangement and perhaps they should be discussed more thoroughly in the light of the current law. In autumn 2001 the government decided that it is to be able – through its agency the National Debt Office – to act directly in the foreign exchange market. Previously all the central government's cross-border payments were made by the Riksbank. This has been changed by the government enabling the National Debt Office to exchange currencies with other counterparties than the Riksbank.

In autumn 2001 the government decided that it is to be able – through its agency the National Debt Office – to act directly in the foreign exchange market.

In July 2001 the government altered the National Debt Office's instructions for the current accounting year with the aim of strengthening the exchange rate.

The lack of clarity also comes from action by the government in the summer of that year. In June 2001 the Riksbank decided to intervene in the currency market, which over the years it has seldom done.[25] In July the government took what to me was the remarkable and unprecedented initiative of altering the National Debt Office's instructions for the current accounting year: the benchmark for the repayment of the government's foreign currency debt in 2001 was lowered from SEK 35 billion to 25 billion, with an option for the Office to deviate from this amount by ±15 billion. Following the foreign loan repayments that had already been made that year, the Office now had no further need to amortise foreign currency debt. That this was a measure directly aimed at strengthening the exchange rate was confirmed in discussions with the finance ministry.

The measure could be seen as a direct intervention in the currency market, albeit on the same side of the market as the measures the Riksbank had just taken and thus aiming for the same result. But it was still a dual command that, were it to be repeated, could prove unfortunate for confidence in price stability.

The government's action, which is almost tantamount to a foreign exchange intervention, does raise questions about which authority is actually responsible for the implementation of exchange rate policy.

Perhaps the risk of the government and the Riksbank heading for a collision in the foreign exchange market on some future occasion should not be exaggerated. But the existing situation and the fact that the government has acted in a way that is almost tantamount to a foreign exchange intervention do raise more fundamental issues about which authority is actually responsible for the implementation of exchange rate policy.

Another unclear issue concerns the Riksbank's financial independence.

Another unclear issue that has arisen in recent years concerns the Riksbank's financial independence. In the bill on the status of the Riksbank, the government singled out four main aspects that determine whether or not the Riksbank can be considered independent:[26]

- *Institutional independence*. It shall not be possible to issue direct instructions to the Riksbank with a view to influencing monetary policy.
- *Personal independence*. Members of the Riksbank's decision-making body are to have a high degree of independence by giving them long terms in office and making it difficult to dismiss them.
- *Functional independence*. The Riksbank shall have a clear objective for monetary policy that should be public and statutory.

[25] After this intervention the Riksbank developed and published a policy for how issues of this type are to be prepared and decided in the Bank and communicated publicly. To my knowledge, no other central bank has done anything along these lines. For a fuller description and discussion of the policy, see Borg & Heikensten (2002).

[26] Government bill 1997/98:40, p. 49.

- *Financial independence.* The Riksbank should have adequate funds at its disposal for the fulfilment of its tasks without being bound by appropriations from the government and parliament.

Responding to the departmental memorandum behind the new legislation, the ECB's predecessor, the European Monetary Institute, considered that the law should include specific provisions for the principles that govern the distribution of the Riksbank's earnings.[27] However, the government rejected this and pointed out that the allocation of the Bank's profits had been decided on the same objective basis every year since 1989 and presupposed that this would continue to happen. Parliament supported the government.

But in spring 1999, just a few months after the new law became effective, the parliamentary finance committee raised the question *"of whether the consolidation that has now been achieved is to affect future transfers to the Treasury"*.[28] So the principle parliament had approved when it passed the new law on the Riksbank's independence was invalidated soon after the legislation came into force. As a result, the Riksbank was obliged to pay a first extraordinary dividend to the Treasury of SEK 20 billion in spring 2001 and a second of the same amount in spring 2002.

The Riksbank had to pay an extraordinary dividend of SEK 20 billion in spring 2001 and another of the same amount in spring 2002.

The finance committee's decision weakened the ability of the Riksbank to maintain a state of readiness for unforeseen events. The balance sheet was eroded in relation to the situation that had existed for many years – given a more reasonable valuation of the krona and thereby of the size of the foreign exchange reserves. Moreover, the process was handled in a deplorable way. A government may obviously have cause to review the size of the central bank's capital but it looks odd when an established principle for the transfer of the Riksbank's profit is first cited and then immediately ignored without a particularly weighty motivation. The subsequent assertion that the established principle shall continue to apply without financial independence being strengthened in law, as the Bank's executive board proposed, created unnecessary uncertainty about the Riksbank.

A government may obviously have cause to review the size of the central bank's capital but it looks odd when an established principle for the transfer of the Riksbank's profit is first cited and then immediately ignored without a particularly weighty motivation.

Before leaving this issue it can be mentioned that the specific provision in the Riksbank Act that the EMI suggested in its day, the ECB has aired again and the Riksbank has requested, is still not there, though the present minister for EU affairs, Gunnar Lund, has written to Commissioner Pedro Solbes and announced a review of the question.

[27] Ds 1997:50.
[28] 1998/99:FiU23.

Open processes and a clear intellectual framework

Transparency has several advantages.

An important feature of the Riksbank's efforts to establish confidence in the new commitment to price stability was the emphasis on transparency. An open attitude has several advantages, four of which are singled out here.

It provides the Riksbank with the means to account for its assessments and its policy to the political system.

One is that transparency provides the Riksbank with the means to account for its assessments and its policy to the political system. Since the overriding responsibility for every aspect of economic policy rests with the political assemblies, the Riksbank has to provide clear evidence of how it has undertaken its delegated tasks.

It makes it easier for the financial markets to understand the Riksbank's actions.

Secondly, transparency makes it easier for the financial markets to understand the Riksbank's actions. A clear intellectual framework behind the formation of policy is intended to make the policy more effective. As everyone has access to the official statistics, the financial players should preferably be in a position to guess what a decision will be before it has been made.

It alters the burden of proof.

Thirdly, transparency alters the burden of proof. There is less need for the Riksbank to argue its case for a repo rate increase, for instance, because that will be clear from the documents that are published regularly. It is rather the case that the Bank must go to greater lengths to explain its actions if, in some situation, it chooses *not* to follow its own analysis. In that way the Riksbank forces itself to make monetary policy as consistent as possible.

It tightens up the internal work.

Fourthly, openness tightens up the internal work. A clear internal responsibility for the production of a forecast's various components motivates the colleagues concerned to do a professional job. They know they may have to answer questions from journalists, analysts and politicians about the basis for the assessments.

THE EVOLUTION OF THE INFLATION REPORT

Transparency's chief instrument is the Inflation Report.

The Inflation Report, now published four times a year, is perhaps transparency's chief instrument. It is backed by the executive board, the Riksbank's supreme decision-making body for monetary policy. It took some years for the Report to acquire its current status and structure.

The prototype, in June 1993, was not explicitly endorsed by either the governor or the governing board.

The prototype, *Monetary Policy Indicators*, was published in June 1993 and consisted of two parts. In one, the work being done in the Bank with monetary policy indicators was presented by economists in signed articles and coordinated by a member of what was then the Economics Department. In the other part, this work was summarised and conclusions were drawn about where the indicators were pointing and what this

implied for the current development of inflation. This part was signed by the head of the Economics Department and the Bank's deputy governor. Thus, the report did not have the explicit support of the governor or the governing board, though I presume it was presented to them.

A second report appeared in October 1993. It was described in the foreword as presenting "*the Riksbank's analysis of current inflationary pressure and inflation expectations*" and was signed by the head of the Economics Department. The arrangement was much the same in the reports that followed in March, June and October 1994 and February 1995, with no direct, explicit endorsement by the governor or the governing board. These reports were admittedly presented to the board but did not elicit any real discussion or decision. So to outsiders their status was still relatively obscure.

The arrangement was much the same in the reports that followed in March, June and October 1994 and February 1995.

A change occurred in the June 1995 report, which was prefaced with a section entitled "Foreword and monetary policy conclusions", signed by the governor and checked with the governing board. The governor acted as the board's spokesman and his signed foreword represented the board's view of monetary policy. In the next report, in November 1995, this section was called "Monetary policy conclusions".

The June 1995 report was prefaced with a section signed by the governor and checked with the governing board.

Much the same approach was used until the new Riksbank Act came into force at the beginning of 1999. Meanwhile, the content of the report was developed. A growing amount of the internal statistics was presented and ultimately the complete inflation forecast. So bit by bit the Riksbank opened up and displayed more and more of its internal work to the outside world.

So the Riksbank opened up and displayed more and more of its internal work to the outside world.

INTELLECTUAL FRAMEWORK AND RULE OF ACTION

Intensive work on constructing a consistent intellectual framework for monetary policy was undertaken in the mid and late 1990s. An important part was played by my successor as governor, Lars Heikensten, at that time the deputy governor. He was also instrumental in attracting many skilled colleagues to the Bank. An account of the work is given in his article in this issue.

Intensive work on a consistent intellectual framework for monetary policy was undertaken in the mid and late 1990s.

The intellectual framework is now familiar to many and well established.[29] It refers, for example, to the target's interpretation, monetary policy's time perspective, and how different types of shock are to be handled. The aim is to establish certain patterns for work on monetary policy but these patterns are not to be applied mechanically. An economy is constantly being exposed to shocks of different kinds and there needs

The intellectual framework is now familiar to many and well established.

[29] See e.g. Heikensten & Vredin (1998).

to be scope for analysing and interpreting them openly in order to derive the appropriate lessons and conclusions.

One component of the intellectual framework is the rule of action for the Riksbank's instrumental rate.

One component of the intellectual framework is the rule of action for the Riksbank's deployment of the instrumental rate. It states that the instrumental rate is *normally* adjusted if forecast inflation one to two years ahead is above or below the target. I emphasise "normally" here because departures from the rule may be motivated occasionally but must then be properly justified to the outside world.[30]

The repo rate is a blunt instrument with a long and variable interval before its effects materialise. The medium-term focus of one to two years has been adopted for monetary policy because experience has taught us the difficulty of fine-tuning the economy. The focus also means that real economic stability is taken into account. With a shorter perspective, relatively large repo rate adjustments would be needed in order to fulfil the target. The longer perspective makes it possible to alter the rate more gradually but it does have the drawback that monetary policy has to be based on assessments of the future. Anyone engaged in economic forecasting knows how hard it is to predict the course of events one to two years ahead. Even so, experience suggests that the possibility of a gradual approach in monetary policy weighs more heavily than the desirability of always being able to make predictions that are accurate to the nearest decimal.

The rule of action means that policy can be conducted in a successive manner, with small, gradual steps instead of large strides.

So an important consequence of the rule of action that distinguishes the current regime from what applied in the 1970s and 1980s is that policy can now be conducted in a successive manner, with small, gradual steps instead of the large strides that were common earlier. This is an advantage because little-and-often is generally better than a lot infrequently. Being obliged to take harsh measures when more extensive imbalances have already accumulated is liable to generate instability in the economy as a whole. The relatively simple rule of action forces the decision-makers to adopt a more gradual approach with smaller measures. In the long run this imparts greater stability to output and employment, besides keeping inflation close to the target. Just how active monetary policy should be is debatable but I believe it is fundamentally better to try to prevent the economy from coming off the rails than to wait until an accident has happened and it has to be hoisted back on.

[30] Executive Board decision on 4 February 1999.

HEARINGS, SPEECHES AND MEETINGS

Starting in spring 1994, as Riksbank governor I was called to the parliamentary finance committee for a public hearing a total of fourteen times. Hearings were held before that but not in public.

The finance committee's public hearings are an important element in the work of making the Riksbank's efforts understood.

For my part, these hearings have been an important element in the work of making the Riksbank's efforts understood. As the Riksdag (Sweden's parliament) is the Riksbank's principal and has chosen to delegate monetary policy decisions to the Bank, it is only natural that an essential part of the discussion of monetary policy occurs there. Giving the Riksbank governor the opportunity of discussing matters openly and directly with members of the finance committee has, I believe, promoted an understanding – and ultimately the legitimacy – of the Riksbank's work.

The media's interest has increased the chances of motivating and explaining monetary policy more fully.

As monetary policy has been discussed particularly intensively since the changeover to the price stability objective, it has also been important to meet many people all over Sweden in various ways to describe and talk about the Riksbank. Over the years there have therefore been numerous speeches, lectures and meetings with people interested in monetary policy, students, trade unionists, employer representatives, party politicians and journalists. The interest displayed by the media has, moreover, increased the chances of motivating and explaining monetary policy more fully to a wider audience. Furthermore, analyses presented by the media, often with insight, have been a challenge for the Bank's internal work.

PUBLIC MINUTES

Another major component of transparency is the publication of the minutes of monetary policy meetings.

Another major component of transparency is the publication of the minutes of monetary policy meetings. The executive board's discussions before a decision is taken are now published in the form of separate minutes, usually about a fortnight after the meeting. The minutes map the course of the discussion and show which member or members, if any, entered a reservation against the decision. They do not reveal which member said what because that might conflict with the aim of stimulating a free discussion that occurs during the meeting. If names were recorded, there would be a clear risk of the monetary policy discussion taking place in earnest in more or less spontaneous gatherings in advance of the board's meeting. The future will show whether this is the best way of making the Riksbank's discussions public. Transparency can no doubt be carried further.

Reservations by board members are basically a sign of strength.

To me, reservations by board members are basically a sign of strength, a public demonstration that monetary policy decisions are not always straightforward. Different people can come to different conclusions at the Riksbank, just as they can in a family discussion around the kitchen table. As long as all the members have the same basic view – that the Riksbank's statutory objective is to "maintain price stability" – it is of less consequence that at times some members differ from the majority opinion.

Concluding reflections

The novelty in the 1990s was the existence of a political will and ability to take a number of major strategic decisions.

The will to strive for low inflation was not an innovation in the 1990s. What was new was the existence of a political will and ability to take a number of major strategic decisions. An important role for these decisions was perhaps played by the division of responsibilities between parliament and the government on the one hand and the Riksbank on the other at a critical juncture in our history. When the exchange rate became flexible, it was up to the Riksbank, not the political system, to make the regular decisions that were needed to steer inflation towards the targeted rate. In this way, monetary policy came to be conducted at one remove from day-to-day party politics. In time, this arrangement became increasingly clear as the government refrained from interfering with the Riksbank's decisions. Later it took the form of a new law that formally confirmed the Bank's independence.

The price stability objective came to function as an anchor for the political system as well as the private sector.

The price stability objective came to function as an anchor and benchmark not just for the private sector but also for the political system. But the success was due not so much to the objective as such as to the political measures that were taken so that the Riksbank was left to build up its competence and make its decisions independently on the basis of internal analyses. At the same time, experience shows that the road we followed in the 1990s was by no means straight. Some things are not yet clear but on the whole it proved possible to establish a regime for stability and thereby break away from the unfortunate 1970s and 1980s.

The Riksbank, like other power centres, must justify its decisions and be ready to discuss and clearly explain the background.

I began by outlining the Riksbank's situation at the beginning of the 1990s. The Bank was often in the limelight on account of the financial deregulation and its consequences, the interest rate shocks during the defence of the fixed exchange rate, the criticism of interest rate policy in 1993 and again during the upward phase in 1994 and 1995. The criticism was harsh at times and so was our image in the media. In my experience, a valuable instrument in such situations is transparency. We learnt that the Riksbank, like other centres of power, must take pains to justify its decisions, with a readiness to discuss and not least clearly explain the back-

ground to what has been done. This is something new for central banks and changing ingrained habits takes time. But the days are long gone when monetary policy decisions could be shrouded in mysticism and taken behind closed doors. People simply do not accept that any longer. While the work of establishing the central bank's legitimacy cannot be separated from the political process, the basic responsibility lies with the bank. It is a hard, sometimes lonely task that takes a long time. I used to joke with my Riksbank colleagues that when an interest rate hike gets the kind of applause that greets an Olympic gold medal for Sweden's ice hockey team, then we will have made some progress. But I willingly admit that there is still some way to go.

Stabilisation policy's favourable outcome in recent years is a good reason, in my opinion, for retaining central elements of the policy framework – some form of target, clear institutional conditions for the policy's long-term direction and a high degree of clarity and transparency – if it turns out that Sweden adopts the euro. Compared with the focus in monetary policy, less attention has been paid to how stabilisation policy is best conducted with fiscal policy. But considering all that has been written about this since the 1930s, there is no lack of an analytical foundation. Still, it is perhaps harder to arrive at clear conclusions about just which arrangement is most appropriate. However, much will have been gained if parliament and the government promote a more profound analysis of how the objective for stabilisation policy should be formulated, which fiscal instruments should be used for different types of shock and how the decision-making process in fiscal policy can be improved with a view to giving a national stabilisation policy credibility.

Finally, I would like to point again to the possibility of applying the experiment with the Riksbank in the 1990s to other agencies and bodies. A distinct objective, established by parliament and the government, clear institutional conditions and a decision-making process that is both transparent and monitored are arrangements that can be used elsewhere, too. Far from eroding democracy, they could make it more effective.

I want to point again to the possibility of applying the experiment with the Riksbank in the 1990s to other agencies and bodies.

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Behind the Riksbank's massive walls – establishing the inflation targeting policy 1995–2003

By Lars Heikensten

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This article was originally presented in Swedish earlier this year in *På jakt efter ett nytt ankare* (Hunting for a new anchor), edited by Lars Jonung, SNS Förlag, Stockholm.

The change to a flexible exchange rate in autumn 1992 faced the Riksbank with a difficult task. Inflation was admittedly low but this was because the economy was in a deep recession; what was needed was a model for the future formation of monetary policy that would maintain low inflation even in better times. Moreover, the environment in which this had to be done included a rapid weakening of the government finances as well as grave problems in the financial sector.

This article is based on Heikensten & Vredin (2002) together with a number of my speeches while at the Riksbank, e.g. Heikensten (2000, 2001a and 2001b). I am grateful for valuable comments from Claes Berg, Urban Bäckström, Jörgen Eklund, Klas Eklund, Lars Jonung, Eva Srejber, Staffan Viotti and Anders Vredin.

In January 1993 the Riksbank chose to target inflation; this has become the most common strategy for a floating exchange rate regime.

Drawing inspiration from other central banks and academics, the Riksbank went for an inflation target. The decision was by no means uncontroversial but now seems to have been wise. Today, inflation targeting is the most common strategy in countries where monetary policy is conducted with a flexible exchange rate. At the same time, the contribution that monetary policy and the inflation targeting strategy have made to Sweden's relatively favourable economic development in the past decade should not be exaggerated. As I see it, the really crucial factor has been the political consensus on the need to keep inflation down and consolidate the public finances. This resolve has been stiffened by being under the financial market's watchful eye.

Several issues featured in the fierce monetary policy debate in the early years.

The fierce monetary policy debate in the early years concerned a number of issues. One was the trade-off with economic considerations other than inflation, for example unemployment and the financial sector's problems. Another was how the exchange rate ought to be viewed in a flexible regime.[1] A third was the connection with fiscal policy. For a long time the government budget was so weak that the financial market could

[1] See e.g. Bäckström (2003).

not be reassured. The unrest also had to do with a perception that the Riksbank and the finance ministry were at loggerheads. Moreover, major differences in economic assessments might have consequences when setting the repo rate. Examples are the Riksbank's picture of resource utilisation and the appraisal of the available information about inflation expectations.[2]

From the mid 1990s, things calmed down, mainly due to adequate measures for bringing order to the government finances.

From the mid 1990s, however, things calmed down considerably, mainly because adequate measures had been taken to bring the government finances into reasonable order. A basic framework for monetary policy had also been established and tested for a couple of years. Moreover, a general economic recovery had begun, aided by the international upswing and a weak exchange rate. So the work on monetary policy became less hectic.

This article describes the current formation of monetary policy.

Such matters as the krona's fall in 1992, the decision to target inflation in 1993 and the development of monetary policy have been considered elsewhere.[3] The focus of this article is the *current formation of monetary policy*: the analytical framework and how decisions are prepared, made and communicated. Much of my work at the Riksbank since I came here in autumn 1995 has centred on these matters, that is, on developing the way in which monetary policy is conducted.[4]

First I shall present the fundamental principles behind today's inflation targeting policy and how they have been developed. Then I shall consider three monetary policy issues that have dogged us over the years: how to take the exchange rate into account in the formation of monetary policy; how to interpret the inflation target in the light of different transitory effects; and the importance that should be attached to movements in asset prices. After that I shall describe how decisions are made, how the Executive Board operates and the basis for our work. Finally, before drawing some conclusions, I shall consider the importance of transparency and outline how the Riksbank has chosen to communicate with the outside world.

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2 See e.g. Postens Finansbrev (1997).

3 See Urban Bäckström's article in this issue.

4 I have cooperated closely and continuously with Urban Bäckström in this work, to which a great many other colleagues have contributed; some key persons have been Claes Berg, Per Jansson, Hans Lindberg, Christina Lindenius, Staffan Viotti and Anders Vredin. The Governing Board of the Riksbank, chaired by Kjell-Olof Feldt, was a source of inspiration in the early years. Since 1999 I have had numerous stimulating discussions with my colleagues on the Executive Board.

The intellectual framework

THE FIRST STEPS

Monetary policy would target 2 per cent inflation, with a tolerance interval of ±1 percentage point.

Not many months after the krona's fall in autumn 1992, the Riksbank decided that monetary policy's future focus would be a 2 per cent inflation target, accompanied by a tolerance interval of ±1 percentage point to signal that deviations were likely but also that they would be restricted. The target referred to the consumer price index (CPI), which is the most familiar and reliable indicator of inflation and is published regularly.[5]

This way of formulating policy was inspired by practice in New Zealand, Canada and the UK.

This meant that a couple of fundamental choices had been made. Policy would not, at least until further notice, envisage a return to a fixed exchange rate[6] but be guided instead by an explicit inflation target. The decisions also ruled out the possibility of letting policy be guided in the first place by some measure of the money supply, which had been the dominant approach to monetary policy in countries with a flexible exchange rate in the 1970s and 1980s. Neither was there room for a combination of strategies along the lines subsequently chosen by the ECB. At the same time, the Riksbank played down the importance of any trade-offs between the inflation target and real economic development. This way of formulating the policy was inspired by similar decisions in countries such as New Zealand, Canada and the United Kingdom.

Targeting inflation required a new type of preparatory work focused on inflation a couple of years ahead.

The decision to target inflation initiated a development that was to take many years and involve changes in the Riksbank's organisation, competence and way of working. When the decision was made, it was already clear that it called for a new type of preparatory work, focused on an assessment of inflation a couple of years ahead. Work on producing such material started immediately at the beginning of 1993. By the time I arrived as deputy governor with responsibility for monetary policy, the main task was to elaborate the analysis of inflation. One important step was the research department we set up in 1996. Another was to establish sound internal processes for producing the necessary material on a continuous basis. Moreover, the new policy would have to be conducted so that it would be credible and generally accepted.

The Riksbank has been relatively advanced in the work of creating a framework for inflation targeting thanks not least to good contacts with the academic world but also to a readiness to depart from some tradition-

[5] For an account of the considerations behind the decision, see e.g. Andersson (2003).
[6] See Dennis (2003).

The Riksbank has been relatively advanced in the work of creating a framework for inflation targeting.

al central bank conceptions and try out new ideas.[7] Moreover, during the past decade there has been intense cooperation between the countries that target inflation and this circle has grown considerably. As quite an old hand at targeting inflation, the Riksbank has also in recent years provided intellectual support to, for example, the central banks in South Africa, Brazil, Turkey and a number of countries in Eastern Europe.

FORECASTS AND RULE OF ACTION

The Inflation Report was developed and acquired a new status in 1995 when it was endorsed by the Riksbank's management.

A prototype for the Inflation Report was published as early as June 1993 in the form of a presentation of inflation indicators. This was followed by early issues of the Inflation Report, which amounted to catalogues of inflation risks. The report was developed by degrees and in 1995 its status was enhanced when, instead of being just a basis for decisions, it was explicitly endorsed by the Riksbank's management. But it did not yet present a comprehensive, consistent picture of the economy and future inflation.

Early in 1996 the Riksbank's management agreed that the Report should be presented as a cohesive forecast.

I found this a problem when I arrived at the Bank, not least in communications with the outside world. It made motivating our policy unnecessarily difficult. So early in 1996 the Riksbank's management agreed that the Report should be presented instead as a cohesive forecast. Another major step later that year was the first publication of numerical forecasts of inflation in the coming two years. In the next twenty-four months these forecasts were augmented with probability distributions for the inflation outcomes, presented in the form of fan charts inspired by similar charts in the Bank of England's Inflation Report.[8] Since then the form of the Inflation Report has been broadly unchanged, though new analytical material has been added continuously and the educational aspect has been reviewed from the time to time.[9]

The announcement of a rule of action in 1997 was a significant step for monetary policy's intellectual framework.

A significant step in the development of monetary policy's intellectual framework was taken in September 1997, when the Riksbank first communicated a rule for its actions. This made it clear that the Riksbank has occasion to raise the repo rate if the inflation forecast points to the 2 per

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[7] In this context I want to highlight four persons outside the Riksbank whose support and insights have been of great assistance to me and who in various ways have also contributed earlier to the Riksbank's work: Bill White (formerly deputy governor of the Bank of Canada, now senior economist at BIS), Alan Binder (formerly deputy head of the U.S. Federal Reserve, now professor at Princeton), Mervyn King (formerly deputy governor, now governor of the Bank of England), and Lars E.O. Svensson (academic adviser and now professor at Princeton).

[8] The observant reader may note that the fans in the first reports with this type of chart were considerably narrower than was subsequently the case. This was because in the first two reports the uncertainty intervals were drawn by hand, unaided by the rather technical probability machinery that was first used in June 1998.

[9] The development of the Riksbank's work on the Inflation Report is discussed in Berg (1999).

cent target being exceeded one to two years ahead, just as there is normally a case for lowering the rate if the forecast points below the target.

The idea of the rule of action came from Lars Svensson, who in some significant papers had formulated a model for central banks that target inflation.[10] Perhaps he derived some inspiration from some of the models that had been developed by the Riksbank and other inflation targeters.[11]

A rule of action had evident advantages. The Riksbank would tie itself up even more and its policy should be clearer. But we had our doubts; perhaps the rule was too strict and too mechanical. After some deliberation and discussions with Lars Svensson, Claes Berg, Hans Lindberg and others, we hit on a simple recipe that the Riksbank's management and Governing Board found acceptable: the word *normally* was included in the rule.

The rule of action aided communication.

We found, as expected, that the rule of action aided communication. Market players found it easier to evaluate new information continuously and relate it directly to the Bank's decision-making problems. This meant that they also had less difficulty in predicting interest rate adjustments. In addition, the rule was valuable internally in that it gave the forecasting work a stronger status. The staff concentrated its efforts even more on forecasting inflation two years ahead. Deliberations by the Riksbank's management and Governing Board became more specific; airing a general concern about inflation in the years ahead no longer sufficed. At the same time, it was made clear from the start that some importance was to be attached to the first year of the forecast as well as to the period beyond the two-year horizon.

FLEXIBLE INFLATION TARGETING

In the early years with an inflation target, Bank representatives played down the significance of a trade-off between inflation and unemployment.

During the early years with an inflation target the Riksbank did not express any major concern about monetary policy's interaction with the real economy. On the contrary, Bank representatives played down the significance of a trade-off between inflation and unemployment. It is sometimes claimed that this was only natural in that confidence in the policy was low. Credibility could be gained more quickly by underscoring price stability as the sole objective, with no room for other considerations. That may have been the reason but I still do not believe it was wise. In the Swedish environment for economic policy it might have been easier to obtain support with a more nuanced line. Neither did the Riksbank in this

[10] See e.g. Svensson (1997) and Svensson (1999).

[11] At our Economics Department there was, for instance, a forecasting model with two equations that was frequently used to obtain suitable paths for the interest rate in a forward-looking two-year perspective. See Hansson (1993).

period make a point of the fact that targeting inflation can normally be expected to contribute to real economic stabilisation in that the interest rate tends to be higher when resource utilisation is rising and vice versa. In the mid 1990s, however, we began to demonstrate in various ways that the Riksbank is not what my British colleague Mervyn King calls an "inflation nutter".[12]

The horizon for the fulfilment of the Riksbank's target is not unaffected by real economic conditions. If inflation is markedly off the target, the Riksbank may choose a gradual adjustment of the interest rate to avoid disturbing economic activity unduly. Neither does the Riksbank aim to counter every short-term price shock, of which more later.[13]

The preliminaries to the Riksbank Act state that as parliament's agency, the Riksbank is to support economic policy's general goals provided this does not prejudice the objective of price stability.

The possibility of a trade-off between combating inflation and real economic development has left its mark on monetary policy legislation in the United States as well as in the Maastricht Treaty. Today, moreover, the view is supported in the preliminaries to the Riksbank Act, which state that as an agency of parliament, the Riksbank is to support the general goals of economic policy as long as they cannot be expected to prejudice the objective of price stability. In the current academic jargon, then, the Riksbank's task is to implement *flexible* inflation targeting.

Note that, notwithstanding the simple rule of action, monetary policy is not mechanical.

It may be worth underscoring that, notwithstanding the simple rule of action, monetary policy is not mechanical. For a series of years, for example, the forecasts of CPI inflation have been supplemented with assessments of underlying inflation, thereby throwing light on the conditions for fulfilling the target in the years ahead. At times, as I shall explain later, the underlying indicators have been at least as important as the CPI forecasts for monetary policy's formation. On a couple of occasions, moreover, the monetary policy decision has been affected, at least marginally, by considerations relating to financial market developments and the possibility of securing financial stability in the coming years. That was the case with the repo rate cuts in autumn 1998 and to some extent after 11 September 2001. Assessments of how an interest rate adjustment is liable to affect the market, as well as more tactical aspects connected with effects on wage formation, for example, may also have influenced the *timing* of a decision.

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[12] See King (1997). A minor episode can illustrate the change: as a fairly new deputy governor I was to talk about monetary policy and presented a text in which some of these relations were considered, whereupon the hardened and frank translator told me it would hardly be accepted; a number of colleagues were also rather sceptical but Urban Bäckström favoured the change in our communication.

[13] Lars Svensson would describe this as a shift from a strict (possibly strictly communicated) to a flexible policy, see Svensson (1997).

While the principles behind Swedish monetary policy are simple enough, many important problems remain to be solved and are still difficult to handle. Three recurrent issues we have had to consider time and again are:

Many important problems that are difficult to handle have not yet been solved.

1. how we should see the exchange rate and manage its fluctuations,
2. how we should handle transitory effects on inflation, and
3. how asset prices should be taken into account in our actions.

I shall now consider each of these issues in turn.

Table 1. Calendar of a decade with an inflation target

Period	Event
19 November 1992	The krona floats
14 January 1993	Inflation target decided by the Riksbank
January 1993–summer 1994	Repo rate cut in several steps, from 10.5 to about 7 per cent; intense monetary policy debate, focus on the government finances and the exchange rate
June 1993	Prototype of the Inflation Report published
August 1994	Repo rate increase
Autumn 1994	Extensive budget consolidation announced. EU referendum, majority for membership
Autumn 1994–spring 1995	Further budget consolidation announced. Link to EU convergence programme. Interest rate still high. Intense monetary policy debate
Autumn 1995	Budget improved. Situation more stable. The krona appreciates
Winter 1996–spring 1997	Repo rate cut in quick steps from 9.15 to 4.95 per cent.
Winter 1996—spring 1997	Riksbank plays down significance of short-term exchange rate movements for monetary policy and develops the notion of a relation between inflation and the real economy
Spring 1996–spring 1998	Inflation Report developed with the introduction of cohesive forecasts (1996), numerical forecasts (1996), and probability distributions (1997)
1996–1997	CPI inflation below the target. Discussion of transitory effects. Clarification published in January 1999.
1997	Rule of action introduced.
Autumn 1998	Financial market unrest. Repo rate cut twice. Riksbank intervenes
1998–2000	Discussion about the so-called new economy. Lower interest rates called for in that the economy is assumed to be working more efficiently; higher interest rates called for later to subdue the equity price rise
January 1999	New Riksbank Act with an Executive Board. New decision-making procedure. Board minutes published
Spring–early summer 2001	Unexpected increase in inflation. Mainly transitory effects. Exchange market unrest. Riksbank intervenes and raises repo rate
Autumn 2001	Economic slowdown. 11 September. Repo rate cut twice.
Autumn 2001	Set of rules for foreign exchange interventions published, underscoring transparency

The exchange rate and the inflation target

Much of the monetary policy discussion has centred on the krona's path.

Much of the monetary policy discussion since the fixed exchange rate was abandoned in November 1992 has centred on the krona's path. Considering that the krona has fluctuated markedly at times and its value has been generally low, this is hardly surprising (Figure 1, page 54). Neither is Sweden alone in this. The exchange rate and its role in monetary policy have been topics for a lively debate in other countries that target inflation, whether the currency has been judged to be too strong as in the United Kingdom or too weak as in Australia and New Zealand.

Since November 1992 the Riksbank has not targeted the krona's exchange rate.

In the decade since November 1992 the Riksbank has not targeted the krona's exchange rate. Monetary policy's primary concern has been inflation's forecast path in relation to the 2 per cent target. But in the Riksbank's assessment of inflation, the exchange rate is an important factor: it affects inflation directly through prices for imported goods and services, besides influencing inflationary pressure indirectly, usually with a longer lag, via effects on the level of economic activity.

A CHANGE OF VIEW

In the early years, monetary policy was to some extent affected by short-run exchange rate fluctuations.

The Riksbank's view of the exchange rate and inflation has changed a bit since the inflation target was introduced. In the early years with a flexible exchange rate, monetary policy was to some extent affected by short-run fluctuations in the value of the krona. This is evident both from the Bank's actions at the time and from its arguments in speeches and other contexts. Perhaps that is not so surprising in that the krona had weakened appreciably and policy's previous focus had been the exchange rate and this continued to colour thinking at the Bank.

One manifestation of the more short-term pattern of reactions was monetary policy's use of an analytical instrument called the Monetary Conditions Index, which attempted to summarise the impact on inflation from movements in short-term interest rates and the exchange rate.[14] The underlying idea was that if the krona appreciates, then lower interest rates should be feasible and vice versa; the index provides an approximate demonstration of this. There is a risk, however, of such an index contributing to an unduly mechanical course of action or at least being perceived as doing so. Experience from Sweden as well as from countries such as Canada and New Zealand suggests that that is the case. A weakening of the exchange rate tends to be used as a direct argument for a higher interest rate.

[14] This is considered in Andersson (2003).

The view of the exchange rate changed in the mid 1990s. In the assessment of inflation, less weight was attached to the actual level of the exchange rate and more to the paths of the exchange rate and inflation over the coming years. This change was facilitated by increased confidence in economic policy in general. The altered view first showed up clearly when the repo rate was cut for the second time at the end of January 1996; this was done even though the krona had just weakened appreciably, partly due to a political move by the future prime minister. The Riksbank broke the earlier pattern by clearly arguing that the weaker exchange rate did not constitute a threat to inflation in the relevant time horizon.[15]

The view of the exchange rate changed in the mid 1990s.

THE CAUSE IS CRUCIAL

Monetary policy's reaction to a shift in the exchange rate is highly dependent on what caused the shift. Knowing the cause often provides an indication of the change's likely duration. The economic situation in other respects obviously has to be taken into account as well. Exchange rate movements can never be seen as isolated events and it follows that monetary policy's reactions cannot be determined by simple rules. A weakening in connection with an international economic slowdown calls for a different reaction to one that stems from lack of confidence in developments in Sweden.

Monetary policy's reaction to an exchange rate shift largely depends on the cause.

There have been many examples in recent years of the difficulties in making assessments of this type. That was the case not least in the early years, when the development of the government finances was a crucial factor behind the path of the exchange rate. But even more recently, when confidence in economic policy has been stronger, the Riksbank has had to make difficult choices.

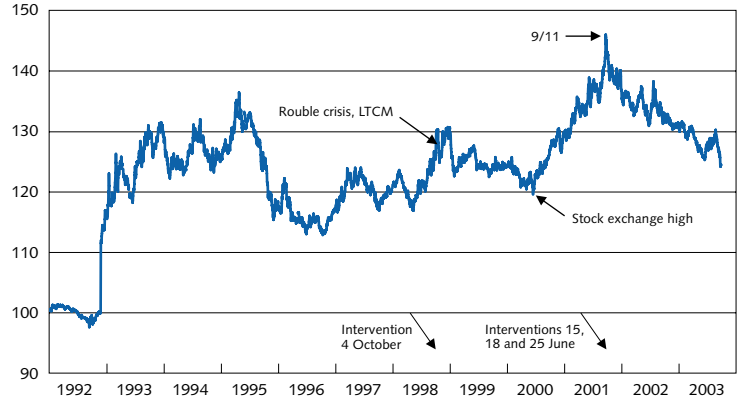
There are many recent examples of the difficulties such assessments involve.

An example is autumn 1998, when the exchange rate weakened dramatically in connection with international financial market unrest. The Riksbank judged that the financial unrest would tend to subdue economic activity and thereby contribute to lower inflation; so despite the weaker krona and motivated by concern about the instability of the financial system, we lowered the repo rate. That autumn we also intervened in the foreign exchange market to underscore that the krona had fallen well below what the Riksbank found fundamentally reasonable.

One example is the krona's dramatic weakening in autumn 1998 in connection with international financial market unrest.

[15] The change of view was noted in market letters and other contexts. Urban Bäckström and I had lunch the same day with some members of the parliamentary finance committee and while we were still enjoying a preliminary glass of juice, the two members from opposition parties immediately asked whether the Bank had changed its policy.

Figure 1. The krona's TCW exchange rate
Index: 1992=100



Source: The Riksbank.

Another example is the krona's abrupt weakening in mid 2001 for reasons that were not obvious.

A different case is the events in May–July 2001. What worried us then was that the krona weakened without there being any new information that could be said to explain the marked shift. The weaker krona meant that the future path of the exchange rate on which policy hitherto had been based now seemed less realistic. The situation was particularly troublesome in that there had been substantial price increases that added to the risk of inflation expectations moving up to a rate that exceeded the target.[16]

WEAKER LINK BETWEEN THE EXCHANGE RATE AND INFLATION

The link between the exchange rate and inflation seems to have become more tenuous in the 1990s.

For monetary policy decision-makers it is a comfort that, to judge from studies of Sweden, the United Kingdom and Australia, for example, during the 1990s the link between the exchange rate and inflation seems to have become more tenuous.[17] Price movements have been moderate in many countries even in periods when the exchange rate fell markedly.

One explanation may lie in the increased international competition.

One explanation for the altered relation may lie in the increased international competition that has resulted from deregulations and growing trade with the emerging markets, for instance. The effects of this on prices are presumably of a one-off nature but as the changes are occurring gradually in country after country and industry after industry, their impact will have a long duration.

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[16] Besides adjusting the repo rate, the Riksbank chose to intervene in the foreign exchange market in both the cases mentioned here. Otherwise, interventions have seldom been used in the past five to six years. The Riksbank's approach to interventions with a flexible exchange rate is considered in Heikensten & Borg (2002).

[17] See e.g. Andersson & Wascher (2001).

Another explanation may be that the move to a flexible exchange rate altered pricing behaviour. In the 1970s and 1980s, the weaker exchange rate that resulted from each devaluation was taken to be permanent and accordingly served as the basis for setting prices. The exchange rate fluctuations that have occurred since then have probably been seen to a greater extent as transient and the pass-through to prices has therefore been smaller.

Another explanation may be that a flexible exchange rate has altered pricing behaviour.

An additional reason why the price impulses from the weak exchange rate in the early years of inflation targeting were smaller than the Riksbank and many others had counted on may be that resource utilisation and thereby demand pressure were overestimated.[18] Lower demand made it harder for firms to pass-through the weaker exchange rate to consumer prices.

A further reason could be that resource utilisation and thereby demand pressure were overestimated.

To sum up, the Riksbank considers the exchange rate primarily in the time perspective that is most important for inflation: between one and two years ahead. We do not normally react to exchange rate movements in a shorter perspective. More and more central banks are doing the same, some of them sooner than others. Certain central banks, for instance the Bank of Canada, have tended to retain a shorter focus, with the result that – just like the Riksbank earlier – they have had to devote a large part of their communications and educational capacity to discussing the latest developments in the foreign exchange market.

The Riksbank considers the exchange rate primarily in the one-to-two year horizon that is most important for inflation.

Handling transitory effects

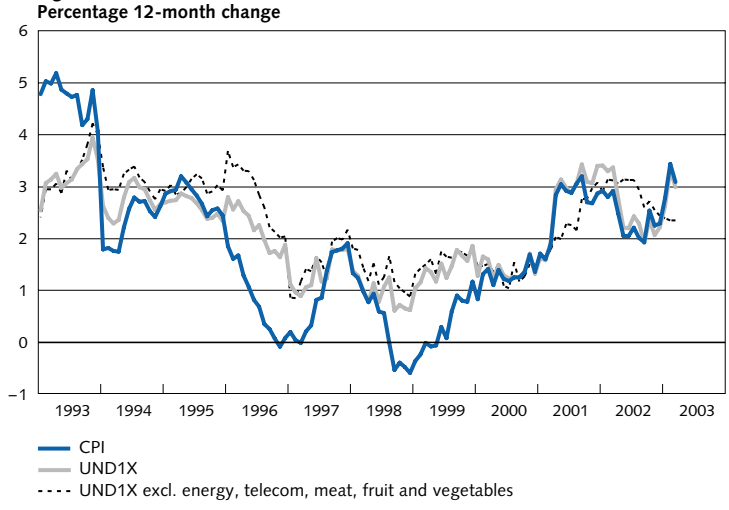
The Riksbank's inflation target is defined in terms of the CPI. It may be asked, however, whether it is reasonable to use the CPI as the sole guide to the formation of monetary policy. This question came to the fore in the period 1996–98, when the CPI dropped sharply and then lay considerably below the 2 per cent target for a couple of years (Figure 2). The fall was primarily due to a sharp drop in housing costs in that both short-term and long-term interest rates came down as confidence in economic policy strengthened and the Riksbank quickly cut the repo rate during 1996. A lower instrumental rate could evidently lead, at least initially, to lower inflation, not higher. Another factor in this period was the changes in indirect taxes and subsidies; they immediately affected the price level but it was not self-evident that they would have a lasting impact on inflation.[19]

The target refers to CPI inflation but it may not always be reasonable to use the CPI as monetary policy's sole guide.

[18] See Apel & Jansson (1999).

[19] It appears from Andersson (2003) that one idea behind interpretations of the inflation target in the early years was to encourage changes in the tax system. Whatever the case for such changes, I do not see this as a task for monetary policy.

Figure 2. CPI and UND1X inflation 1993–2003
Percentage 12-month change



Source: The Riksbank.

PROBLEMS WITH ALTERNATIVE TARGET VARIABLES

The Riksbank searched for a single alternative to the CPI as an inflation indicator.

Other countries that target inflation have had similar experiences and some of them have concluded that the target variables ought to be changed. Others have chosen to be guided in the "day-to-day work" by other indexes than the one that is officially targeted, and to describe their policy in relation to these alternative indicators of underlying inflation.[20] For a long time the Riksbank endeavoured to find a single alternative indicator of inflation that could replace the CPI and give a better picture of underlying or trend inflation. However, such an approach involves several problems.

One difficulty is the lack of a clear definition of indirect taxes and subsidies.

One difficulty lies in the lack of a clear-cut definition of indirect taxes and subsidies. Thus, the definitions used for the CPI and the various indicators of underlying inflation do not include certain subsidies and charges. A case in point arose in 2000 over how we should handle a change in the day nursery charge. This change was expected to entail a fairly substantial lowering of inflation in 2002 but did not formally represent a subsidy because day nurseries are provided and financed by local authorities. Both CPI and UND1X inflation looked like being well below the target one to two years ahead but it was difficult to see why such a price movement called for lower interest rates.

[20] In general, however, the theoretical basis for choosing other indexes is rather shaky because underlying inflation is usually computed by excluding certain categories of goods and services from the CPI, whereas economic theory suggests that an optimal monetary policy ought to react to shocks of different kinds and these may affect many different prices in the economy, see Nessén & Söderström (2001).

Another difficulty has to do with changes on the economy's supply side. There have been several occasions in recent years when various shocks have affected prices for food as well as for electricity and oil. Some central banks have tried to handle this by consistently using indexes that exclude food and energy prices. However, there have been a number of times when that would not have helped us.

Another difficulty has to do with supply-side changes.

This raises a third question of how monetary policy ought to handle effects on inflation that come from deregulations. It was partly due to deregulation of the electricity and telecom markets in particular that inflation in Sweden was very low in the second half of the 1990s as well as in 2000. Although each of the deregulations amounted in itself to a transitory effect, it contributed to a process that lowered inflation. So where should the line be drawn between a shift in relative prices that leads to effects on inflation that call for a monetary policy reaction and a shift that does not?

How ought monetary policy to handle deregulation's effects on inflation?

A further difficulty concerns the calculation of a particular shock's aggregate effect on inflation. This is hardly feasible without a rather sophisticated model of the total economy. As an example we can take price changes for electricity and oil. Besides their direct impact on inflation, they clearly influence households' purchasing power as well as corporate earnings and therefore have considerably greater effects on the economy and ultimately on inflation as well.

A further difficulty is calculating the inflationary impact of a particular shock.

Then there are objections in principle to excluding sizeable aggregates of goods or services that have been hit by price changes. The central bank's aim should be to stabilise the general price level, not counter shifts in relative prices. This is because it is the general price level that monetary policy can influence, not the price of, say, a pork chop or a nail. It also has to do with price stability being beneficial for economic agents because it means they can rest assured that purchasing power as a whole will be maintained.

THE RIKSBANK DECIDES FROM CASE TO CASE

The Riksbank has been wrestling with this issue ever since inflation targeting was introduced.[21] When the new Executive Board took over in 1999 we made it clear that policy would *not* be formed in the light of a single indicator of inflation. Instead, like some other central banks, we would stick to the CPI as the primary target variable but would, when preparing each decision, consider which indicator of inflation it would be most reasonable to start from and then use this as a purely operational guide. This

The new Executive Board indicated that policy would not rely on only one indicator.

[21] See e.g. Andersson (2003) and Bäckström (2003).

way of working does not differ greatly from the practice that had been built up earlier. What was new was that each monetary policy decision would be accompanied by a clear account of which indicator of inflation we were working with, thereby making it easier to evaluate the policy correctly.[22]

In recent years we have frequently started from UND1X.

In practice this means that at almost every meeting we discuss how the various components of price developments should be seen. In recent years we have frequently chosen to start from UND1X because it has not seemed reasonable for monetary policy to be influenced by changes in indirect taxes and subsidies or by the interest rate's impact on housing costs. We also chose, for instance, to play down the price rise for food and energy in 2001–02. Such an approach does presuppose that those who follow our actions, not least the market, see the line we are taking and believe that our choice of inflation indicator is not swayed by irrelevant considerations.

Asset prices and monetary policy

A central bank's attitude to asset prices has featured in the Swedish debate on economic policy since the crisis in the early 1990s.

A central bank's attitude to asset prices is a classic issue in the literature on monetary policy. Since the crisis in the early 1990s it has also featured in the Swedish debate on economic policy. This has to do with the real estate bubble that was blown up in the late 1980s and the grave consequences, primarily for the financial system but also for the real economy, when the bubble burst. The Riksbank's engagement was heightened by the interest that both Urban Bäckström and Stefan Ingves have displayed, fired by the bank crisis.[23] Internationally, the question of how asset prices ought to be handled in connection with monetary policy has been high on the agenda since the mid 1990s but here it has focused more on equity prices: whether something could and should have been done to prevent the stock market bubble and subsequently to mitigate the effects when it burst.

[22] To my knowledge, no other central bank works in exactly this way. New Zealand is perhaps closest, in that the central bank governor's contract with the finance minister clarifies how monetary policy is conducted when inflation is affected by transitory effects. Our approach was inspired by a dialogue with Mervyn King (besides now being governor of the Bank of England, he is honorary chairman of Aston Villa) on the way to the league final in Birmingham between Aston Villa and Manchester United. For a fuller account of the Riksbank's approach, see Heikensten (1999).

[23] It was at Urban Bäckström's initiative, for example, that the Riksbank launched the first financial stability report – a regular survey of systemic risks in the payment system. See also Bäckström (1993).

Two different questions are often combined; one is whether asset prices ought to be considered in the formation of monetary policy.

This actually consists of two different questions that are often combined, causing confusion. The first is whether the path of asset prices ought to be taken into account in the formation of monetary policy. Here it is widely agreed that as demand and thereby inflation are affected by both house and equity prices, these must be included in monetary policy assessments. The Riksbank does so by, for example, including house prices as well as stock market trends as factors of importance for household wealth, which in turn influences household consumption and consequently inflation. Those who have followed our work know that these matters featured prominently in the discussion both when the stock market peaked in 1999–2000 and in recent years when equity prices were falling steeply (Figure 3).

The other question is whether an asset price indicator should be included in the target function.

The other question is whether some indicator of asset prices should be included in the central bank's target function. Ought monetary policy to react to equity or house prices irrespective of the forecast path of consumer prices? Agreement is lacking in this respect in the academic literature.[24] The notion of intervening raises another question: How can one tell whether or not an asset is over-valued? And if it is: How does one burst a bubble in an orderly way? Just mentioning these questions is sufficient for many central bankers to conclude that monetary policy ought not to aim for asset price stabilisation.

The Riksbank should conduct monetary policy so that it does not generate unnecessary fluctuations in output and employment.

My view is somewhat different. It is reasonable in any event to consider the matter in a wider context. Besides maintaining price stability, the Riksbank is required to promote a stable and efficient payment system. Moreover, provided it does not prejudice our primary objective, we are to do what we can to support economic policy's other goals, such as good economic growth, high employment, etc. It follows, as mentioned earlier, that the Riksbank should conduct monetary policy so that it does not generate unnecessary fluctuations in output and employment.

This amounts in practice to striking a difficult balance. If we see that financial imbalances are building up and consider that this either threatens the security of the payment system or is liable to lead to an abrupt adjustment in the real economy, with negative consequences for growth or employment, then there are grounds for taking action with the interest rate.[25]

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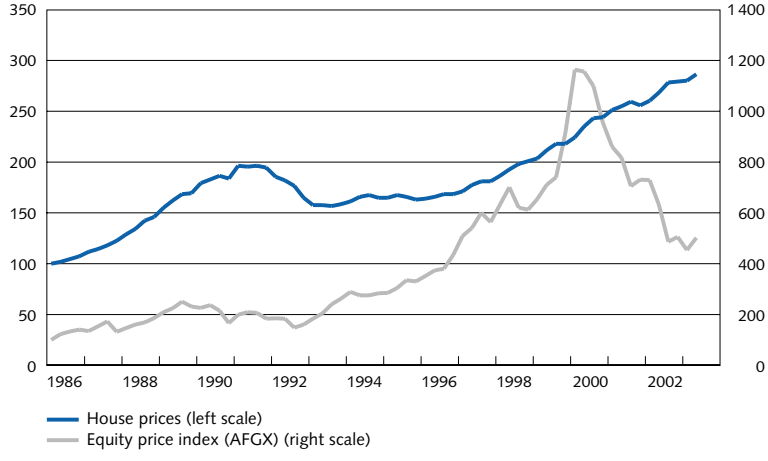
[24] Some references are Alchian & Klein (1973), Bernanke & Gertler (2001), Cecchetti et al. (2000) and Gilchrist & Leahy (2002).

[25] There are also those who claim that the risk of bubbles is reduced by the knowledge that the central bank may take action; see e.g. Cecchetti et al. (2000). If that is the case, it strengthens the case for central bank activism.

The stock market trend in 1999–2000 would have been more worrying if the IT and telecom investments had been largely financed via the banking system.

It is partly on this account that the Riksbank keeps a close eye on the banking system. If the investments in the so-called new economy had been financed to a large extent via the banking system, we would definitely have been more worried than we were about the stock market trend in 1999–2000. When the bubble burst, we saw that our assessment had been largely correct: as the IT and telecom investments had been financed essentially with venture capital, the effects on the bank sector were slight.

Figure 3. Real estate and equity prices
Index: 1986=100



Sources: Statistics Sweden and Affärsvärlden.

The important thing is to identify situations that are notably risky.

I believe it is possible to develop forecasting models for asset prices that would be serviceable for monetary policy.[26] They may not need to show the exact level at which asset prices are fundamentally motivated or just when they are likely to fall; the important thing is to identify situations that are notably risky. This information, combined with assessments of how the economy and the financial system may be affected, can then be taken into account when setting the interest rate.

The task of the central bank is perhaps facilitated by recourse to other instruments, e.g. capital requirements for financial institutions and regular oversight.[27] The Riksbank's biannual Financial Stability Report is intended to play a role in this context. It brings problems of this type into the open, partly with a view to promoting voluntary action.

[26] See Borio & Lowe (2002).

[27] In the context of G10 cooperation the Riksbank has led work on a report that analyses how asset prices are affected by taxes, regulations and information. See G10 (2003). The report notes the importance of keeping economic systems free from built-in mechanisms that are liable to contribute to asset price bubbles. It also provides examples of measures that can reduce the risk of a destabilising development of asset prices.

Real estate prices can be susceptible to monetary policy adjustments. Although it was not these prices that attracted attention in the second half of the 1990s, this is an important insight because it is their collapse, rather than equity price falls, that has regularly had the greatest negative effects on financial systems as well as on entire economies.

Real estate prices can be susceptible to monetary policy adjustments.

When it comes to monetary policy's impact on equity prices the situation is more discouraging, at least in a small country like Sweden. Equity prices are determined in international markets over which the Riksbank has little influence. So presumably the only way we might have been able to affect the Swedish stock market at all substantially in 1999–2000 would have been with a drastic interest rate hike and that would have had considerable negative effects on growth. But what we could and no doubt should have done to a greater extent was to speak up about what we saw as unduly high valuations.

When it comes to monetary policy's impact on equity prices the situation is more discouraging.

The basis for decisions

ASSESSMENTS ONE TO TWO YEARS AHEAD ARE CRUCIAL

It takes time for monetary policy to affect inflation. Some effects of an interest rate adjustment can occur very quickly. Stock markets and the fixed income market, for example, may react as soon as a change in the repo rate is announced, so that household consumption, for instance, is affected immediately. There may then be little delay before certain prices are adjusted. Normally, however, monetary policy acts with a time lag. Consumption and investment react gradually to an increased interest rate, for example, and this leads in time to changes in total demand as well as output. Lower demand makes it more difficult for firms to increase their prices, which means that inflation slackens. Lower investment, on the other hand, is ultimately liable to lead to higher inflation.

There is normally a time lag before monetary policy affects inflation.

Interest rate adjustments accordingly affect inflation via a number of channels, some of which we know more about than others (economists refer to this as the transmission mechanism). It is not clear just how long it takes for the various effects to materialise. As I mentioned, calculations by the Riksbank and other central banks suggest that a reasonable time perspective for monetary policy's maximum impact on inflation is one to two years.[28]

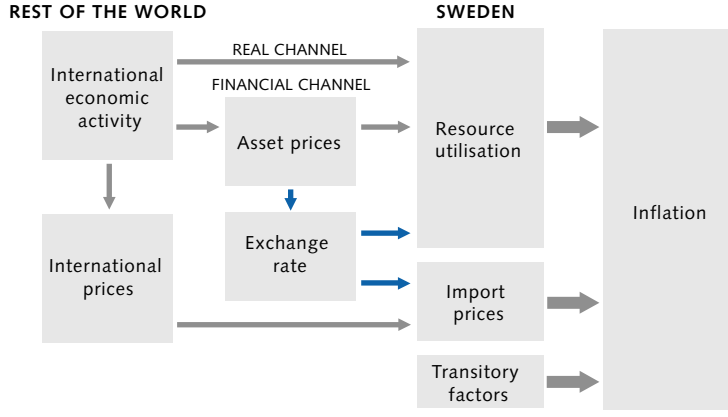
Interest rate adjustments affect inflation via a number of channels.

So when the Riksbank prepares a monetary policy decision, it is very much a question of producing forecasts for inflation in the coming years.

[28] Central banks also differ in their choice of time perspective. The ECB, for instance, talks of conducting monetary policy in a medium-term perspective, while the Federal Reserve sometimes indicates that its perspective is considerably shorter.

That in turn calls for knowledge of what has been and is happening in the economy, as well as of various economic relationships with which to interpret the available information.

Figure 4. Outline of the inflation analysis



A COHERENT PICTURE

The Riksbank aims to build up a coherent, consistent picture of future economic developments.

The method behind the Riksbank's main assessment is relatively complex. Like other economic observers, we aim to build up a coherent and consistent picture of economic developments in the years ahead. For this we use a computer spread-sheet for processing economic data (economists call this a model). The analytical framework has also guided the presentation of our assessments in the Inflation Report. Starting from appraisals of global economic developments, various international prices (e.g. for oil), the exchange rate and interest rates, we form a picture of economic activity and resource utilisation in Sweden. Normally it is resource utilisation that is crucial for inflation. Then we add an assessment of inflation expectations as well as estimates of more or less transitory factors such as changes in interest rates and taxes. The end result is a forecast of inflation.

The spread-sheet contains numerous relationships, some more quantified than others.

The spread-sheet contains numerous relationships, some more quantified than others. An example is the statistical relationships for calculating exports. Swedish exports are estimated as a function of economic developments in the rest of the world and the path of the krona or some other measure of relative prices. But as some important relationships are not particularly stable, we have to make judgements on the basis of other experiences. Knowledge of the course of events in other countries is sometimes a help in this context.

The main spread-sheet for producing the forecast is supplemented with a number of smaller models. These can be used to throw light on interesting relationships and to produce alternative scenarios.[29]

The assessment needs to include the direction of economic policy in other respects.

When assessing economic developments and inflation we also need to know the direction of policy in other respects, particularly fiscal policy. This is sometimes evident from published documents or the Bank's regular contacts with the finance minister or under-secretaries. On other occasions it has been necessary to appraise the situation and base an assumption on that. This approach clearly entails the possibility of potential conflicts with the government but since the mid 1990s it has functioned satisfactorily.

The economic information we use comes from, for example, Statistics Sweden, the National Institute of Economic Research and their counterparts in other countries. Assessments from the IMF and OECD are also used, as well as Consensus Forecast, which compiles the forecasts produced by private sources. In addition, we try to collect as much information as possible from our contacts in Sweden and abroad. I set great store by a continuous dialogue with colleagues about what is happening in their countries and their deliberations.

NOT AN EXACT SCIENCE

Forecasting is evidently not a matter of applying an exact science. In the late 1990s, for example, the low domestic inflationary pressure came as a surprise to virtually all observers in Sweden. The historical relationships had suggested that inflation would be higher. Part of the explanation seems to have been that deregulations and increased international competition had made it more difficult to increase prices. There are also signs that the low and stable inflation expectations were a greater help than we had expected.[30] Moreover, the Riksbank's appraisal of resource utilisation has had to be reconsidered several times. A number of downward revisions were made in the late 1990s. So when inflation suddenly moved up in 2001, we became more concerned again. However, more recent data on productivity, for example, seem to confirm the impression that in these respects the economy is at least functioning somewhat better than we counted on five to six years ago.

The Riksbank makes parallel assessments of risks.

It need hardly be said that some unforeseen event can also cause forecasts to miss the mark. A good example from the past decade is the Asian crisis in 1997–98. The uncertainty that constantly attends decisions

[29] Some examples of the Riksbank's macro models are presented in Assarsson et al. (1999), Jacobson et al. (2001) and Nilsson (2002).

[30] See Adolfson & Söderström (2003).

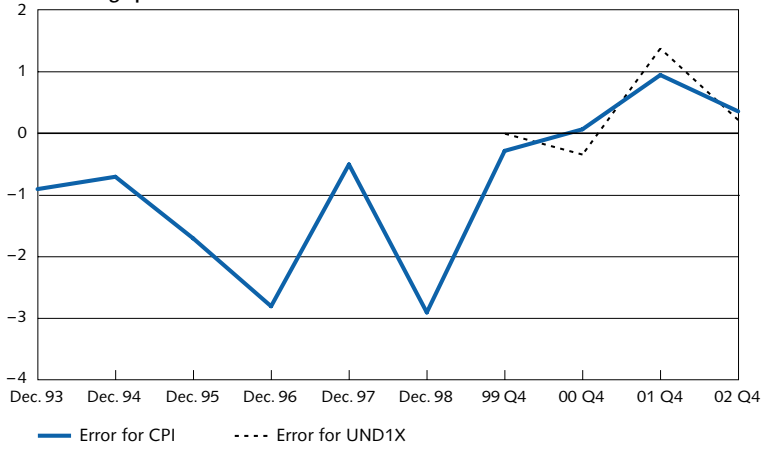
is handled by not relying on a single forecast for the economy and inflation. For a number of years the Riksbank has used parallel assessments of risks and, as I mentioned earlier, these risk scenarios are also presented in the Inflation Report.[31]

The decision-making process

The procedure for monetary policy decisions has changed a good deal in the past decade.

The procedure for monetary policy decisions has changed a good deal in the past decade. From 1992 to 1998 the interest rate was set by the Governing Board, which was appointed by parliament. The decision was prepared in the Riksbank and sometimes endorsed in advance by the Board. The governor was formally responsible for the proposal, regardless of by whom it was prepared or presented. Various members of the Riksbank staff were, of course, involved in the preparatory work. There was also a so-called policy group, made up of those who were considered most relevant for producing a sound basis. Up to the presentation of the proposal to the Governing Board, the processes were very informal.

Figure 5. Errors (outcome less forecast) in forecasting the CPI and UND1X 1993–2002
Percentage points



Note. The forecasts in 1993–97 were made during Q4 and predicted inflation in December the following year; from 1998 onwards both the CPI and UND1X have likewise been forecast in Q4 but in terms of average Q4 inflation in the following year. The dates of the errors refer to the outcome, i.e. the forecasts were made a year earlier.

Source: The Riksbank.

[31] The method is presented in Blix & Sellin (1999).

A NEW PROCEDURE

The new Executive Board as of 1999 needed a different model for preparing and making monetary policy decisions.

When it was clear that as of 1999 the monetary policy decisions would be in the hands of the new Executive Board, another model was needed for how the decisions are to be prepared and made. A proposal was therefore drafted in autumn 1998 with a view to presenting it at the first Executive Board meeting in January 1999. Many collaborators contributed ideas and suggestions. We also had contacts with, for example, the Federal Reserve and, in particular, the Bundesbank and the Bank of England. Together with Urban Bäckström, I then presented the final proposal to our colleagues on the new Board, whereupon it was adopted and has been broadly followed ever since.

A basic question was how frequently the Board should discuss monetary policy.

A basic question was how frequently the Board should discuss monetary policy. We chose an arrangement with around eight scheduled meetings a year.[32] The discussion at four of these meetings is based on the concurrent Inflation Report. The dates of the meetings are fixed about six months in advance, both to give the internal work a firm frame and for the benefit of those who follow our work, not least in the financial markets. Extraordinary meetings can, of course, be arranged; in practice, it is enough for one of the Board members to request such a meeting. As we have made clear, a public announcement of such meetings is made as soon as possible. Since 1999 extraordinary meetings have been held on two occasions: in connection with the foreign exchange interventions in June 2001 and after the terrorist attacks on 11 September that year.

The decision-making process over a normal year consists of four 12–13 week cycles.

With this procedure, the monetary policy decision-making process over a normal year can be said to consist of four 12–13 week cycles, each ending with an interest rate decision and a new issue of the Inflation Report. An intervening monetary policy meeting is held in the middle of each cycle (Figure 6).

The Inflation Report is considered by the Board in a series of at least three meetings.

The Inflation Report is considered by the Board in a series of meetings: one or two are devoted to discussing the general issues that are to be aired in the Report, together with the Board's assessment of inflation, another is held to finalise the Report and yet another occurs a week or so later to set the repo rate. The intervening monetary policy meetings are devoted to comparing any new information with the forecasts in the most recent Inflation Report and then deciding the repo rate.

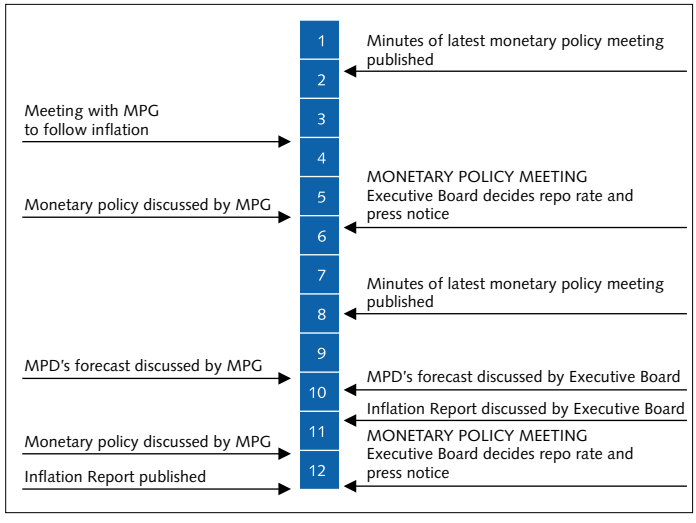
The nature of Board discussions varies, depending on whether an Inflation Report is to be published.

The nature of our discussions during the Board meetings varies somewhat, depending on whether or not an Inflation Report is to be published. Our deliberations are most extensive in connection with the presentation of a Report. About two to three weeks before this is published, an infla-

[32] The Federal Reserve meets about as often. The Monetary Policy Committee of the Bank of England is required by law to set the instrumental rate once a month; at present that is also what the ECB does.

tion assessment, produced independently in the Monetary Policy Department, is distributed simultaneously to all the Board members. In this policy report, members of the staff present their appraisals of price developments and draft an inflation forecast. This report is usually accompanied by a separate document describing developments in the financial markets. Recently, moreover, the policy report has been augmented with a document about monetary policy strategies, with analyses of alternative assumptions for the central variables, including the repo rate.

Figure 6. The monetary policy decision-making process



Note. MPD: Monetary Policy Department. MPG: monetary policy group.

POLICY GROUP PREPARES THE MEETINGS

The Board's monetary policy meetings are preceded by meetings of a monetary policy group.

The Executive Board's monetary policy meetings are preceded by meetings of the so-called monetary policy group. As the deputy governor responsible for the preparation of monetary policy issues, I chaired this group from 1996 to the end of 2002. The meetings are held more or less on a weekly basis to discuss current issues to do with monetary policy as well as more methodological questions. The policy group is made up of economists, most of them from the department that produces material for decisions (formerly the Economics Department, now the Monetary Policy Department). Other colleagues who could be expected to make a significant contribution to the discussion of monetary policy have also participated, e.g. advisors to the Riksbank's management and the heads and members of the Research Department and the Department for Market Operations.[33] The group's functions have not changed much since the

[33] Members of the Executive Board are entitled to attend meetings of the policy group if they so wish.

period before the Executive Board. Then as now, it has been a matter of maintaining the quality of the material that is prepared for the Executive Board's decisions and suggesting appropriate monetary policy measures.

In the early years with an Executive Board, the material produced by the Monetary Policy Department was analysed and discussed by the policy group prior to the discussion in the Executive Board. The aim was to extend the discussion to relevant colleagues outside the Department and take it to greater depths before the Board meeting. It also gave the authors of the report a chance to practice their presentations and prepare themselves for questions that Board members might ask.

Since autumn 2002 the policy group meets with the full Board present a couple of days before the Board's meeting.

Since autumn 2002 we use a somewhat different model. The monetary policy group now meets with the full Executive Board present a couple of days before the Board's meeting. All the Board members then have an opportunity of putting questions to the policy group. This can lead in the best case to a broader basis being produced for the Board's meeting a couple of days later. Moreover, as the lengthy presentations have already been made, it leaves more scope for the Board members to discuss among themselves at their meeting.

The Board's discussion of inflation assessments follows the same pattern as the analysis of inflation.

The Board meetings at which inflation assessments are discussed follow the same pattern as the analysis of inflation in Figure 4 (or in chapter 2 of the Inflation Report). The Board proceeds step by step, discussing each of the areas that are relevant for the assessment of inflation. This process ends with the Board deciding on a main scenario for inflation. That is followed by a discussion and analysis of the identifiable risks that could lead to inflation diverging from the main scenario.

This is often the hardest discussion, both because Board members sometimes differ in their risk assessments and because it may be difficult to characterise and describe all the conceivable alternatives exactly. In the end, the risk scenarios are weighted together and an inflation forecast is presented, with a main scenario as well as a probability distribution for alternative outcomes.[34]

Arriving at an inflation assessment normally takes between 1 1/2 and 3 hours.

Arriving at an inflation assessment normally takes the Board between 1 1/2 and 3 hours. When that has been done, the Board members' views of the situation are often fairly clear. From this it is usually possible to guess how they will want to act at the meeting that sets the repo rate. Board members who are doubtful about the agreed picture usually indicate that at this stage.

[34] The way in which risks and alternative scenarios are discussed at the Riksbank does not differ greatly from the Bank of England or the Federal Reserve. We all experience the difficulties of discussing matters and then summarising a shared view of a complex reality in a sizeable group. Development work is therefore in progress at all three central banks.

On the basis of the points made by Board members at the meeting (summarised as a rule step by step by the chairman or the deputy governor responsible for the preparations), a draft Inflation Report is prepared by the staff. After some days the draft is distributed to the Board, which discusses it a week or so later. The comments at this meeting tend to be confined to minor reformulations and shades of meaning that are normally included in the draft that afternoon, after which the Report goes to the printers.

THE REPO RATE DECISION

The repo rate is set at a meeting five to seven days later.

The meeting to set the repo rate is held five to seven days later. The starting point is the finalised Inflation Report. Before the Board members decide whether or not to endorse the Report, any new, essential information about the financial markets or the economy is presented. In the four to five years with the Executive Board, such information has not occasioned any changes or additions to the Inflation Report.

The chairman then asks whether the Board endorses the Report.[35] Normally all the Board members do so. The occasional divergent views have seldom differed fundamentally from the Report, amounting to some tenths of a percentage point in the picture of inflation. To the individual member, however, even such slight differences may call for a reservation, particularly if they affect the position on the repo rate.

When the Inflation Report has been adopted and any divergent opinions noted, the discussion focuses on setting the repo rate.

When it has been decided to adopt the Inflation Report and any divergent opinions have been noted, the discussion moves on to what the repo rate should be in the interval up to the next decision. This phase usually begins with the Board member responsible for preparing monetary policy summarising the opinions that were put forward a day or so before at a meeting of what might be called the nucleus of the monetary policy group. This nucleus consists of the most senior members of the policy group and has achieved a high degree of continuity over the years, so its discussion has often been rewarding and penetrating. In this group there is no voting but it is clear when opinions differ. The summary of the arguments serves as a starting point for the Board's own deliberations. The "nuclear group" is present and can comment on what is said, though this seldom happens, and in recent years has also taken an active part in drafting the press notice on the repo rate decision.

[35] In this respect the Riksbank differs from the Bank of England in that our Inflation Report represents a majority view and can therefore present a clearer account. See Kohn (2000).

The presentation of the arguments and conclusions is normally followed by the Board members outlining their view of inflation and the repo rate one by one, after which there is a freer discussion. The governor has frequently but not always bided his time and a consensus has tended to form fairly quickly. The governor decides in practice when the discussion should cease by proposing that a decision should be made. Voting has usually been done with a show of hands. Members who so wish have motivated a different view and have had this recorded in the minutes. It has not been necessary to have a complicated voting procedure because there has never been a meeting with more than two proposals.

The summary of the arguments serves as a starting point for the Board's own deliberations.

Every monetary policy meeting, including those in between publications of the Inflation Report, concludes with a discussion of the press notice, which is then decided. The notice, which contains a summary of the majority view on which the repo rate was decided,[36] is a major policy document in that it is there, not in the Inflation Report, that the Riksbank currently motivates the monetary policy decision. The press notice is, of course, particularly important in connection with the Board meetings that are not accompanied by an Inflation Report; on those occasions it is the sole source of written information about the Riksbank's view of inflation until the minutes are published.

Every monetary policy meeting ends with a decision on the press notice.

INTERNAL TRANSPARENCY AIMED FOR

As I mentioned earlier, before adopting the current procedure for preparations, discussions and decisions, we sought inspiration in other countries. The model we finally arrived at includes elements from various places, perhaps in the first place from the United Kingdom.

In some respects, however, the Riksbank has gone its own way. Compared with most other central banks, for instance, the staff who produce the basis for our decisions have a stronger position. They are required to produce a coherent assessment of inflation, whereas at the Bank of England, for example, this is done by the Monetary Policy Committee, which roughly corresponds to our Executive Board. We chose this arrangement both to benefit from the competence of our staff and to give the assessments continuity; at the same time, it encourages the staff to develop their skills and makes their work more interesting.

The staff who produce the basis for our decisions have a stronger position than in most other central banks.

[36] That the notice presents the majority view needs to be underscored because this has sometimes been misunderstood by market players, who have been surprised to find a more composite view in the minutes that are published later.

The Riksbank aims to give all Executive Board members an equal opportunity of influencing decisions, in contrast to the Bundesbank and the ECB.

The Riksbank endeavours to give all members of the Executive Board an equal opportunity of influencing decisions, in contrast to the arrangement practiced by the Bundesbank and adopted by the ECB. When the basis for monetary policy has been produced by the Monetary Policy Department, it is sent simultaneously to all the Board members without first being perused by the monetary policy group or the deputy governor responsible for the material. The competent staff also present their material, whereas at the ECB, for example, this is done by the Board member responsible for monetary policy. As at the Federal Reserve but not the ECB, moreover, the key officials are able to be present and voice their opinions at Board meetings.

Still, the decisions as such are a matter for the Executive Board.

At the same time, the decisions as such are a matter for the Executive Board, a responsibility it has not shirked in these four to five years. Both the main scenario and the spectrum of risks as presented by the Monetary Policy Department have been changed on some occasions. Neither has the Executive Board always shared the monetary policy group's opinion about the interest rate. The preparatory material and the summaries of the policy group's discussions provide a starting point for the Board's deliberations but the Board may well come to a different conclusion. The important thing is that the Board has well thought-out, consistent assessments on which to base its decisions.

Our arrangements for preparing and making monetary policy decisions are influenced by a desire for internal transparency.

Finally it may be worth underscoring that our choice of arrangements for preparing and making monetary policy decisions has been guided by a desire for internal transparency. We have aimed for a broad, competent discussion between staff members before finalising the basis for the Board's decision. Such discussions are now held both in the Monetary Policy Department, where they result in a policy report, and together with other experienced officials in the policy group, before finally taking place in the Executive Board in the presence of the officials most closely concerned.

Transparency and communication

In the ongoing international discussion about monetary policy there is a lot of talk about the importance of transparency and accountability. Transparency can be said to comprise openness as well as clarity. Accountability in turn concerns the possibility of taking people to task or, more specifically, of being able to identify who is responsible for the policy and for reaching the policy's objective. In practice this requires that the processes leading up to decisions are transparent.

TRANSPARENCY IMPORTANT

Most people would agree that transparency and accountability are important if monetary policy is to function properly. There is much less unanimity, however, about what transparency and accountability stand for. Opinions differ to a large extent because national traditions vary when it comes to openness in society in general and the same applies to how responsibility is to be exacted and democratic control maintained. It has also to do with attitudes to the financial markets and how well different ways of conducting monetary policy have worked in different environments.

Four reasons for transparency are commonly put forward in the economic debate:

The main argument for transparency is usually that it helps to establish monetary policy's credibility.

1. The main argument for transparency is usually that it can help to establish monetary policy's credibility. The principle reasons put forward in the academic literature are that transparency makes a central bank's actions easier to follow, understand and evaluate. It is then also possible to check that no extraneous considerations are taken and that the policy is implemented systematically.[37] This argument is no doubt particularly important for a central bank that, like the Riksbank in the 1990s, has to establish confidence in a new type of policy. By communicating transparently, that is, openly and clearly, a central bank can take a short-cut to the credibility that otherwise requires a long record of good results.

To be successful, a policy has to be understood and legitimate in society in general.

2. An aspect that is seldom mentioned in the literature on economics but which I find crucial is that in the long run it is hardly possible to conduct monetary policy in a way that is credible in the usual sense of the word if the policy lacks broad support. To be successful, a policy has to be understood and legitimate in society in general. A professional approach and the policy's outcome are naturally of central importance in this context, too. One way of generating understanding, support and respect may be to formulate clear goals and procedures that give a sense of direction and make the policy easier to evaluate and question. Accountability is a reasonable requirement in particular for institutions with a lot of power, which applies to many central banks, including the Riksbank. Moreover, people in a democracy ought to be entitled to transparency in monetary policy no less than in all other policy, as pointed out by Alan Blinder, a former deputy chairman of the Federal Reserve.[38]

[37] See e.g. Svensson (1997).
[38] See Blinder (1998).

There are good reasons to believe that a more transparent interest rate policy works better in a technical sense.

3. There are good reasons to believe that a more transparent interest rate policy works better in a technical sense. If it is easier for economic agents – in financial markets, firms and households – to predict the future direction of policy and adjust accordingly, then fluctuations in interest rates and other market prices ought to be smaller. This should also make the real economy more stable. Mervyn King has said that monetary policy ought to be conducted so as to be so predictable that it is boring; in other words, he sees no point at all in surprising the markets.[39] This view seems to have gained growing support in central bank circles in recent years but is not yet fully accepted everywhere.

A fourth aspect is that transparency and accountability have a bearing on internal vitality and efficiency.

4. A fourth aspect, which the Riksbank was one of the first to raise and underscore, is that transparency and accountability have a bearing on the organisation's internal vitality and efficiency. An open attitude is, of course, particularly important for institutions like central banks which have a monopoly and have not been communicative in the past. Clear objectives and an ambition both to publish the basis for decisions and to motivate the policy in a convincing manner help to make the work more focused and sharpen the analysis. Working in this way they also pave the way for a broader discussion of monetary policy in society, as well as with scholars and other outside observers, and this in turn can generate a constructive feedback to the central bank. Working in an intellectually open central bank is perhaps less convenient but it produces good results.

This brings me to various aspects of the Riksbank's communications but first I want to underscore the importance of starting from a clear analytical framework. A central bank's transparency and communications are often discussed as though they were unconnected with the construction of policy in other respects – as though it was just a matter of selling a ready-made message. I do not believe that is the case. The extent to which a central bank is understood and the credibility of its policy naturally depend on how successful the policy has been and presumably on how consistently it has been conducted and for how long. However, it also has to do with the clarity of the analytical framework for policy and the construction of the decision-making processes.

THE EXECUTIVE BOARD'S MONETARY POLICY COMMUNICATIONS

The new Executive Board added some dimensions to transparency.

By the time the independent status of the Riksbank was given the force of law in 1999, considerable progress had been made with the analytical framework for targeting inflation. The target had been formulated, forecasts were published on a regular basis and the rule of action for repo rate

[39] See King (2000).

adjustments had been observed. The new Executive Board added some dimensions to transparency. Previously, external communication on monetary policy issues had been handled by the governor and the deputy governor responsible for these issues. This always involved mutual consultations in advance and the aim was to speak with one voice.[40] With the Executive Board, the Riksbank would be directed by six people, each one of them individually accountable for the Bank's operations in general and for monetary policy decisions in particular. Surely, each of them should be able to make themselves heard? How could their individual performance be assessed without knowledge of their positions on monetary policy issues? How could all their speeches and statements be coordinated efficiently in practice to produce a uniform picture?

These were some of the questions we had to consider in autumn 1998, along with those I mentioned in connection with the decision-making process. Our proposal for communication was likewise influenced by the arrangements the Bank of England had chosen. That was, for example, how we got the idea of publishing the minutes of the discussion as soon as possible but without revealing details of what each member had said.[41]

In our model, Executive Board members normally speak for themselves.

In the model we have chosen, members of the Executive Board normally speak for themselves. This lessens the need for a general reconciliation and coordination of all the speeches and interviews. But the Board members also have an informal agreement to keep each other informed about individual initiatives and to distribute speeches internally in order to collect comments prior to publication. This we hope will enhance the quality of our speeches and avoid unnecessary mistakes in communication. So we do not intend to iron out all differences of opinion and external observers cannot assume that individual Board members are not just speaking for themselves.

We also decided that the minutes of monetary policy meetings would be published after a time.

We also decided that the minutes of monetary policy meetings would be published after a time. The minutes reproduce the Board's discussion and show how each Board member voted. The minutes are edited for better reading and to avoid misunderstandings; Board members have normally been able to tone down what they have said and make it more instructive but cannot introduce entirely new arguments or ideas. As a result, the minutes give a good picture of the discussion without detailing exactly what was said. Before endorsing the minutes, the Board members go through them together to clear up any obscurities. The decision not to record everything that is said during the meetings word for word and not

[40] Policy guidelines had, of course, been approved in advance by what was then the Governing Board.
[41] For a discussion of these issues, see Buiter (1999) and Issing (1999); see also Blinder et al. (2001).

to identify the speakers was taken very deliberately: we certainly wanted to present an open account but considered it was even more important to promote a discussion that is free and searching.

The Executive Board's joint monetary policy communication takes the form of the Inflation Report and the ensuing press notice.

The Executive Board's joint monetary policy communication takes the form of the Inflation Report as well as the press notices and communiqués that are issued after the meetings. In recent years, press conferences on monetary policy have been arranged only in connection with repo rate adjustments; they are then normally held by the governor together with the Board member responsible for the preparation of monetary policy as joint representatives of the majority view. We also have an arrangement whereby one Board member is entitled to speak for the entire Board; an announcement is then made to this effect and to date it has happened only when the governor is engaged in meeting the parliamentary finance committee. The idea, however, was that the arrangement could also be used to communicate a joint standpoint in the interval between monetary policy decisions.

RISKS WITH THE RIKSBANK'S MODEL

The Riksbank's approach clearly entails risks, one being that media might exaggerate and persist in highlighting differences of opinion among Board members.

The procedures the Riksbank has chosen for communication clearly entail risks. One risk that we considered a good deal before going ahead was that the media would continuously exaggerate and highlight differences of opinion among Board members, which might harm the Riksbank's image. There was also a possibility of this leading to internal problems, particularly as the Board is jointly responsible for managing the organisation. These concerns have proved unfounded. At first the media had plenty of items on Board members' various opinions, often rather strangely embroidered with ornithological terms. But they soon dried up and today the different shades of opinion in our discussions are presented, in general correctly, without much fuss.

Another issue was monetary policy signalling. In the years before the new Executive Board took over, the market had been in a relatively good position to foresee future decisions, so unnecessary fluctuations had been largely avoided. This was mainly because the analytical framework had become clearer: market players were now able to gauge the significance of new information. There had also been a number of occasions when the Riksbank's management had actively communicated its view in order to prevent misunderstandings.

The new set-up complicated monetary policy signalling.

The new set-up made matters more complicated. A single course could no longer be communicated in advance of the meetings because it would not always be clear what this would be. But even this seems to have worked reasonably well, probably to no small extent because the

framework for our actions has become more established.[42] Moreover, the minutes of meetings give market players information of a new type that can be useful for predicting future decisions. Presumably the market has also learnt to assess the communications of individual Board members and discern which of them are likely to represent the majority view in different situations.

A third issue was how the new arrangement would affect decision-making.

A third issue that attracted some attention in the early days of the Executive Board was how the new arrangement would affect decision-making in practice. There was some speculation about matters being fixed in advance so that we would not have a proper discussion at the meetings.[43] That has not happened, as testified by the minutes as well as by the General Council's representatives at the meetings.[44] That is not to say that there is no discussion of monetary policy issues in between meetings, which would be unnatural, not to say unsuitable. As the deputy governor responsible for preparing monetary policy I have personally at times had such talks with many staff members as well as with colleagues on the Board.

Many of the risks that were considered in 1998–99 have not been a problem.

So it seems that many of the risks that were considered in 1998–99 have not proved to be a problem. But the system is vulnerable; an individual Board member could very easily act in such a way as to hit the headlines. We have therefore chosen not to assess each other or our various opinions in public but to concentrate instead on the outlook for inflation. A public debate between us could easily escalate, with negative consequences for our internal work as well. Still, in my opinion, recording minutes of the meetings does have the drawback of sometimes tending to stifle a spontaneous exchange of ideas. The discussion is liable to be steered by the fact that minutes are taken and subsequently published.

Once again, however, I want to stress the advantages of the increased transparency that is evident from the minutes and the individual points of view. All this clearly paves the way for an evaluation, besides facilitating the democratic control of the Riksbank and insight into its work.[45] In addition, the chosen procedures have contributed to a better understanding in society in general as regards the Riksbank's policy and the tasks we have to perform.

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42 See Andersson et al. (2001).

43 See e.g. SEB (1999).

44 See Gernandt & Hulterström (1999).

45 It could actually be argued that our chosen arrangements apply pressure on those who appoint the Executive Board to choose individuals who are capable of reasoning about monetary policy in public and of answering for themselves.

Conclusions

Much of the work has involved building up competence for the new task of setting the repo rate so that inflation one to two years ahead will be in line with the target.

My aim has been to penetrate the Riksbank's massive walls to provide a picture of how we currently work on monetary policy and how our approach has been developed since the changeover to targeting inflation a decade ago. Much of the work has involved building up competence for the new task of setting the repo rate so that inflation one to two years ahead will be in line with the target. Considering how important repo rate adjustments are for economic decisions by households and firms, we have naturally also taken great pains to explain and justify our actions. This in turn has accentuated the need for well thought-out analytical principles that can guide policy and be communicated externally. The key word has been transparency.

In the work of constructing the policy the Riksbank has had a great deal of support from colleagues in other countries as well as from our contacts in the academic world. But rather than directly copy another country's solution, we have tried to arrive at an approach that is appropriate for Swedish conditions, including a generally open public culture, a strong parliamentary tradition and a long record of active counter-cyclical policy.

Differences in how central banks make decisions, communicate externally and are evaluated are often a consequence of their legal frameworks.

Perhaps it should be pointed out that many of the differences in the ways in which central banks make decisions, communicate externally and are evaluated are a consequence of their legal frameworks. If elected politicians have delegated a clear mandate to the central bank, as is the case with the Bank of England, the task can be said to be more technical. With the ECB the matter is somewhat different in that the mandate is somewhat broader and the link to the political system more tenuous, partly because here the system consists of a dozen nations.[46]

Still, I believe there are reasons for not being unduly agnostic. Our own experience during these years points to some conclusions that should have a universal application.

A clear intellectual framework is an advantage.

A clear intellectual framework is an advantage for the task of fulfilling the 2 per cent target and specifying the deviations that are acceptable in connection with transitory effects. The same applies to the rule of action in interest rate policy, which we have actually followed to a high degree. Finally there is the publication of forecasts and assessments as a basis for using them in arguments about the policy. This makes the policy easier to explain, understand and evaluate.

The clear intellectual framework has naturally tied us down to some extent; that was in fact its purpose, partly as a short-cut to credibility. At

[46] See Favero et al. (2000).

the same time, the clear framework has obliged us to make a deeper analysis. But the fact that this 'straightjacket' has worked to date does not mean that we follow our principles unconditionally and mechanically. New problems and questions may arise. But departures from the simple rules do exact a price in the form of less clarity.

The internal processes for preparing and deciding monetary policy are important, partly because they can ensure a good basis for the decisions and contribute to a livelier internal discussion. Typical features of the Riksbank in an international perspective are the short distance between staff and decision-makers and the extensive exchange of views between them. We also have a continuous interchange with the academic world.

The Riksbank's work for openness has presumably contributed to a quicker acceptance of the low-inflation policy.

The Riksbank's endeavour to make the discussion more open has presumably helped to gain acceptance for the low-inflation policy more quickly in many circles than would have been feasible otherwise. Transparency has also contributed to a better internal discussion as well as to a more effective dialogue with external observers in markets, the academic world and elsewhere. This in turn has made us sharpen the analysis, besides helping to make the public discussion of monetary policy more realistic.

I believe we share these experiences with many of the countries that target inflation. They are also experiences that can benefit countries where inflation targeting has recently been adopted as well as countries where the principles for monetary policy are less distinct.

Monetary policy's new construction ought to be an appropriate model for other policy fields.

Furthermore, the construction that monetary policy has acquired in recent years ought to be an appropriate model for other policy fields. Central features are a clear objective, well-defined instruments, open discussions about how to fulfil the objective and regular evaluations combined with the possibility of exacting responsibility. In our submission on the report of the inquiry into stabilisation policy in the event of a move to Stage Three of EMU we have proposed that the same could apply to fiscal policy.[47] However, the experiences could be applied more widely than that.

[47] See Sveriges Riksbank (2002).

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On central bank efficiency

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What is central bank efficiency and how can it be measured? In this paper we discuss the issues that make central bank efficiency more difficult to define and analyse than economists' standard notions of firm efficiency. Much of the material draws on a recent workshop on this topic organized by the Riksbank.[1] But rather than presenting a comprehensive summary of the workshop, we focus primarily on the policy conclusions that we believe emerge.

The authors have benefited from comments from Nicoletta Batini, Staffan Viotti and Anders Vredin.

Central banking has certain features that make it quite different from the operations of private firms. Central banks tend to have a combination of somewhat vague objectives and soft budget constraints, whilst not being subject to market forces in the usual way. And while vague objectives is something that many public institutions have in common, the soft budget constraint is particularly obvious in central banking. For private firms in a competitive environment, the profit motive may guide decisions about which products and services to render while at the same time serving to impose cost efficiency. For them, bad decisions may lead to low profits, risk of takeover or bankruptcy. But such market forces are largely absent from considerations about what the purview of central banks should be and how their goals should be attained with cost efficiency.

Central banks tend to have a combination of somewhat vague objectives and soft budget constraints, whilst not being subject to market forces in the usual way.

Another feature of central banking is the tendency to have several goals, in contrast to the single goal of profit maximization that is usually assumed for private firms. While some goals are easy to measure, others do not readily lend themselves to quantification. Thus, the normal pressures for efficiency do not apply directly to central banks. While it is true that the need to attain and to keep legitimacy does exert pressure for efficiency, it cannot quite match the knife-edge competition from market forces.

Another feature of central banking is the combination of several goals, where some do not readily lend themselves to quantification.

[1] On May 23–24 2003 the Riksbank organized a workshop on Central Bank Efficiency; the purpose was to bring together academic economists as well as economists involved in policy-making for an exchange of views and also to promote research in this area. Most of the papers that were presented are available at the Riksbank website www.riksbank.com/conferences/efficiency and referenced in this article.

A concept of central bank efficiency involves considerations of what the appropriate services are as well as how they can be produced at least cost.

We believe it is uncontroversial that a concept of central bank efficiency involves considerations of *what* the appropriate services are as well as how they can be produced at *least cost*. It resembles the standard economic concept of efficiency, which envisions that resources are used to produce goods and services that people actually want and that this is done in ways that are not technically wasteful. But the scope of a central bank's tasks is far from uncontroversial, an issue we discuss more below.

The rest of this paper is organized as follows. In the next section we discuss what the tasks of central banks should be. Thereafter we discuss measurement issues and the final section concludes.

What should be the tasks of central banks?

Assigning too many tasks to one institution has detrimental consequences in terms of unclear focus and inefficient management.

Many tasks that central banks perform have evolved more or less by historical accident, which partly explains the observed disparity of these tasks. There is, however, a growing awareness that assigning too many tasks to one institution has detrimental consequences in terms of unclear focus and inefficient management. This can be compared with the reactions to the negative outcomes of the corporate sector's conglomerate wave in the 70s. Today in both the public and the corporate sector there is much emphasis on focusing on core business.

A crucial first step for central bank efficiency is to establish what a central bank's core tasks should be.

We believe that a crucial first step for central bank efficiency is to establish what a central bank's core tasks should be. Although it is commonly considered that a concentration on core activities is a prerequisite for good performance, there is no consensus on central banking's core activities. In part this reflects the evolution of policy institutions in different environments with different challenges. But it also indicates that what a central bank should do *is not* self-evident.

Green (2003), for example, takes a broad historical approach to this issue and argues that the core tasks should be: 1) Providing fiscal services to the government, i.e. being the government's bank; 2) Managing the public debt in ways that maintain the confidence of the public; 3) Issuing short-term credit to facilitate the settlement of interbank claims;
4) Providing lender of last resort functions to banks in a crisis. In addition, he argues that two additional tasks may be considered as core tasks:
5) Providing a nominal anchor to the value of money or its rate of return;
6) Dampening business cycle fluctuations.

We would like to take a different approach to what should be the core tasks of a central bank, namely to consider the problem from scratch. Thus, take as starting point the economic environment in which the cen-

tral bank operates and be concrete about the market failures – or externalities – that the creation of a central bank is supposed to solve.[2]

We argue that the overriding objective for central banks should be payment systems efficiency.

Virtually all economists would probably agree that there is a need for central bank money which can function as a generally accepted medium of account as well as a medium of exchange. But there is also a wider role for central banks in promoting an efficient payment system. The payment system is one of the things that are often taken for granted in a market economy, such as the rule of law in the enforcement of contracts and public safety. Without such basic functions, market economies would grind to a halt. Alas, private institutions do not have the incentives to perform these functions in a market economy. We therefore argue that the overriding objective for central banks should be *payment systems efficiency*, as discussed in Santomero, Viotti & Vredin (2001).

Maintaining price stability and financial stability should clearly be core tasks of the central bank.

What does payment systems efficiency imply for core activities? Maintaining price stability and financial stability should clearly be core tasks of the central bank; without stable prices, the payment system cannot work efficiently and without a stable financial system, payments and transactions may be severely impeded, let alone be efficient. To establish operational goals, however, it is useful to turn to hard-learned lessons of economic history. The huge cost of high inflation has led many central banks to adopt an inflation target. The high inflation episodes during parts of the 1970s and 80s ultimately led to high unemployment and sluggish growth in many parts of the world for no apparent gain. Similarly, the numerous financial crises around the world have led many central banks to keep a watchful eye on the situation in the financial system.

Central banks are involved in many more activities of which some are not core tasks.

However, central banks are involved in many more activities, of which some, we contend, are not core tasks. The extent of this involvement should be a subject for open discussion and debate rather than sticking to entrenched positions. As noted above, some tasks may have arisen more by historical accident than design and then remained in the central bank domain without ever being questioned. There could be a case for being involved in a task not usually considered core if *economies of scope* are considered to exist between different activities, that is, if being involved in the activity may enhance one's ability in another that is seen to be a core task. An example is the "hands on" experience gained from being active in the financial markets, thereby acquiring knowledge and credibility. However, there is a risk that economies of scope are used to motivate all sorts of non-core activities, particularly since they are virtually impossible to measure.

[2] This approach was suggested by Staffan Viotti in his discussion of Green's paper cited above.

Additional tasks should not impinge on the core tasks.

Another important step towards increased efficiency is thus to establish criteria for whether or not an additional task should be undertaken. One such criterion, suggested by Edward Green (cited above), is that the question of undertaking additional tasks should pass the litmus test of not impinging on the core tasks. The overall goal of payment systems efficiency may then be used to distinguish suitable core activities from additional tasks.

Being involved in many non-core activities is a problem for managerial efficiency and competence.

Being involved in many non-core activities is also a problem in terms of managerial efficiency and competence. For example, the Riksbank used to run a paper mill for the production of notes. This is an industrial operation for which the people appointed to the executive board tend not to have the strongest comparative advantage. Board members often have experience of forecasting, economic policy or banking – not of logistical and manufacturing operations. In the overall picture, such operations tend to get *too little* attention in the central bank; delegating them to a separate company can ensure that they get the attention they deserve from management and the necessary focus for operational efficiency. Besides being good for the central bank, enabling it to concentrate scarce managerial resources on core tasks, this gives the delegated activities a better chance of flourishing.

WELL-DEFINED OBJECTIVES AND OPERATIONAL INDEPENDENCE

Vague objectives make it difficult to hold the central bank accountable.

Goals for central banks are usually stated in quite general terms, like "maintaining price stability" and "promoting an efficient payment system". But vague objectives make it difficult to hold the central bank accountable and both research and practical experience have shown that accountability is important for efficiency. Together with soft budget constraints, this means that the incentives for efficiency are small. Thus it is desirable, whenever possible, to specify the objectives more precisely.

Several central banks have quantified the overall objective of price stability into an operational target for inflation.

In this vein, several central banks have quantified the overall objective of price stability into an operational target for inflation. In the area of monetary policy, which lends itself to quantification, there has been a general move towards more measurement and transparency. In areas where measurement is less easy, central banks can use benchmarking against so called *best practice* and sometimes external reviews by inde-

[3] External reviews have been made, for example, of the Bank of England, see Kohn (2000), Pagan (2003) and the Bank of England's response (2000, 2003); of the Reserve Bank of New Zealand, see Svensson (2001) and the response by the Ministry of Finance; of Norges Bank, see Svensson et al. (2002) and Longworth & Rødseth (2003); and of the Riksbank, see Leeper (2003) in this issue. See Fracasso et al. (2003) for an external review of several inflation-targeting central banks and see Sims (2003) for an appraisal of central banks' modelling strategies.

pendent economists or academics.[3] Here we believe there is scope for more work, an issue we return to below.

TRANSPARENCY AND ACCOUNTABILITY IMPORTANT FOR EFFICIENCY

Increased independence accentuates the need for transparency and accountability to achieve trust.

Increased independence accentuates the need for transparency and accountability to achieve trust. To keep its legitimacy the central bank has to explain its actions and gain the public's trust both by its arguments and forecasts ex ante and by achieving its goals ex post. Without this trust, monetary policy – and policy signalling in the form of statements about the probable future direction of the steering rate – is likely to be less effective in influencing expectations, so that ultimately the goal of price stability becomes harder to achieve with a given policy action. It is also more difficult for the central bank to act as a stabilizer of the financial system. Thus, in both areas the efficiency and credibility of policy are crucially dependent on the central bank's perceived transparency and legitimacy.

Transparency is important in that it facilitates external evaluations of the central bank's operations.

Transparency is also important in that it facilitates external evaluations of the central bank's operations in the light of the relevant information. This type of evaluation will normally aid in enhancing efficiency. For example, the Riksbank's overall activities are regularly evaluated by the Parliamentary Auditors.[4]

Finally, transparency stimulates improvements to a central bank's internal analysis and decision-making processes.

Finally, transparency stimulates improvements to a central bank's internal analysis and decision-making processes. When vital arguments made internally have to be explained externally, the staff is under pressure to provide the executive board with high-grade analyses and the board is held accountable for how well the policies fulfil the central bank's goals. For example, the Riksbank's assessment of inflation prospects is published four times a year in the Inflation Report; and monetary policy is motivated in the minutes of the monetary policy meetings. These published materials help others to evaluate the Riksbank. In particular, they aid the Swedish parliament in its bi-annual evaluation of Sveriges Riksbank. Also, a transparent organisation can communicate more freely and precisely with the outside world, including the academic community. In effect, transparency can thus serve as a substitute device for enhancing efficiency in the absence of direct competition.

[4] They recently performed a comprehensive audit of the Riksbank's operations in which they highlighted a number of areas where costs appear to have increased more than expected.

How to measure central bank efficiency

A central bank's *costs* are relatively easy to measure if one has that ambition. Relevant items include staff numbers, salary levels and the number of central bank branches. But a central bank's *outputs* do not all lend themselves to quantitative measurement. One way of measuring efficiency is therefore to assess whether central banks perform the tasks assigned to them in a satisfactory way. In other words, do central banks deliver?

EFFICIENCY IN MONETARY POLICY

For monetary policy, many issues and trade-offs are well documented.

Although there is no universally accepted way of measuring efficiency in monetary policy, this is probably an area where more research has been done than for other central bank tasks. Many issues and trade-offs are well documented, such as that between output and inflation stabilisation. It is also fair to say that policymakers have taken much note of academic findings, both in the design of institutional frameworks and in the formulation of monetary policy goals. Although it is an area that is comparatively well understood, important questions remain unanswered.

The lack of a universally accepted way of measuring efficiency in monetary policy has prompted central banks to consider several measures.

For one thing, the lack of a universally accepted way of measuring efficiency in monetary policy has prompted central banks to consider several measures. Many of these measures tend to be outside the purview of the models that are popular in the academic literature.[5] One, albeit rather crude, measure of monetary policy efficiency is the closeness of inflation outcomes to the target. Also considered is closeness to target of various measures of underlying inflation, an exercise which can provide information about the shocks that have occurred in the economy. Indicators of core (or underlying) inflation have been constructed that exclude certain CPI components. The Bank of Canada[6], Sveriges Riksbank and many other central banks also use different rules, such as Taylor rules, for comparisons with actual policy as an aid to thinking about alternative paths – and thereby perhaps also provide insights into efficiency. For example, this exercise may shed some light on whether or not target fulfilment was partly a matter of *luck* rather than *design*.[7] Also common is benchmarking of forecasts against other forecasters, in particular against the consensus mean.

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[5] One strand of literature specifies monetary policy trade-offs (i.e. policy efficiency) by specifying a quadratic loss function for the trade-off between output and inflation stabilization, see for example the overview in Svensson (2001) and Svensson et al. (2003).

[6] See Longworth & Cosier (2003).

[7] Blix, Dillén & Sterte-Knudsen (2003) have found evidence that the information available at the time of the forecast appeared to be efficiently incorporated into the Riksbank's forecasts using simple statistical criteria, but that the speed of revision appeared too slow in that the forecast errors are persistent over time. They also found smaller inflation target deviations over time. They suggested that the assumption of a constant repo rate in the Riksbank forecast is problematic.

EFFICIENCY IN PAYMENT SYSTEMS AND FINANCIAL STABILITY POLICY

When it comes to efficiency in payment systems and financial stability policy, there may be a paradox in that the easier it is to apply efficiency measurement methods, the more natural it becomes to leave those tasks to the market (maybe with the central bank retaining some supervisory tasks).

It does not seem clear why central banks should be directly involved in the operation of payment systems.

In the area of payment systems operations and the pricing of various payment instruments, efficiency is relatively easy to study.[8] But it does not seem to be clear *why* central banks should be directly involved in this area in the first place. For example, why should central banks be operationally responsible for the clearing and settlement of large-value payments or why should they be directly involved in the business of clearing cheques? Perhaps an efficient payment system policy would call for the outsourcing of these activities? In financial stability policy, on the other hand, measuring efficiency is very difficult. Here, however, there are *externalities* and *information problems* that clearly motivate central bank involvement. We believe this illustrates that the core tasks may be primarily those where measurement is harder and efficiency potentially more problematic.

One particular problem concerns the trade-off between risk and return in the payment system.

One particular problem concerns the measurement of risks in the payment system. This has implications for efficiency in terms of the trade-off between risk and return. For the individual firm or investor there is clearly such a trade-off. The same applies to a central bank but it is less clear what is optimal for society: a policy that ensures a low risk and is therefore "safe" may be considerably more costly in normal times and hence seemingly cost-inefficient; on the other hand, should a crisis occur, the costs for society may be quite large.

Two different examples from a less abstract setting can be used to illustrate this point.[9] It may seem inefficient to have a large number of policemen patrolling the highways when speeds generally are moderate, but if the policemen were to be removed, driving behaviour would probably change dramatically; similarly, the presence of airport firefighting capabilities – that are almost never used – may seem inefficient, but may provide crucial succour in an emergency.

The dilemma, however, is that this kind of argument can be used to justify any sort of redundancy. Just as with economies of scope, it is hard to know where to draw the line. Work on measuring the efficiency of

[8] In the area of efficient pricing of various payment instruments, Humphrey et al. (2003) show quite a large potential for enhancing efficiency. An electronic payment is shown to cost between one-half and two-thirds less than its paper-based alternatives. This difference can be translated into a gain corresponding to *more than 1 per cent of GDP* annually from switching from all paper to all electronic payments.

[9] These examples come from participants in the Riksbank workshop.

Very little work seems to have been done on the evaluation of policy work, such as financial stability analysis, financial regulation and supervision.

financial stability policy in the broader sense is almost non-existent. Very little seems to have been done on the evaluation of policy work, such as financial stability analysis, financial regulation and supervision. Considering the quickly growing involvement of central banks (and supervisory authorities) in this policy field, that should be a matter of concern. We believe it is important that this area receives more research attention, hopefully leading to a better foundation for policymakers to act on.[10]

OPERATIONAL EFFICIENCY AND BENCHMARKING

There are difficulties in defining the appropriate outputs and it is often easier for central banks to talk about tasks rather than outputs.

How can the operational efficiency of central banks be measured? Are the methods applied to private financial institutions appropriate? These issues are addressed by for example Mester (2003). The literature on efficiency in financial institutions often starts from the minimisation of cost functions, inspired by microeconomic principles, to discuss such issues as scale economies, scope economies and X-efficiency in transforming inputs into outputs. However, the uniqueness of some central banking activities makes a mechanical application of this approach problematic. There are difficulties in defining the appropriate *outputs* and central banks pursue complex multiple objectives. It is often easier for central banks to talk about *tasks* rather than *outputs*, as what is rendered is in essence a type of service that leads to a stable economic environment.

Some formal, preferably quantitative measures of output are needed in order to analyse operational efficiency.

Nevertheless, some formal, preferably quantitative measures of output are needed in order to analyse operational efficiency. In this area, central banks can do much more than at present.[11] For example, central banks perform some tasks that are also carried out by other institutions with which comparisons could be made in the search for efficiency. This applies to such diverse activities as administrative work and academic research.[12] For activities that in principle could be outsourced, comparisons could be made with bids from external suppliers. Concerning tasks that only central banks perform, e.g. monetary policy, comparisons between central banks can provide useful benchmarks for improvements in efficiency.

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[10] Boot (2003) discusses the challenges the EMU countries face in developing a regulatory system that efficiently sustains financial stability.

[11] At the Riksbank workshop, Sandra Pianalto, President of the Federal Reserve Bank of Cleveland, discussed how cost competition and efficiency had evolved at the Cleveland Federal Reserve. They introduced so-called balanced score cards, which can be used to weigh together different categories into a one-dimensional measure. These improved Cleveland's position to be at the top in this regard. It was emphasised, however, that managers have to be careful when interpreting such results and be mindful of the factors underlying them.

[12] Some previous attempts in benchmarking research activities in Europe have come to the conclusion that "small is beautiful", i.e. smaller central banks are better at research than larger ones. Jondeau & Pagés (2003), however, argue that the evidence is split and does not support this notion directly. They find that some smaller central banks have a significant number of publications in the high-quality journals, while some of the larger ones have many publications in more middle level or national journals.

Policy conclusions

Central banks should concentrate on core activities and strive for efficiency in those. Moreover, a central bank should continually think hard about what the core activities are. Often this involves a political process with many vested interests attempting to sway the outcome. Steering the right course under such circumstances is an important task for the central bank and for the political authorities, as the economic gains to society may be considerable.

Central banks should concentrate on core activities and strive for efficiency in those.

As regards measurement and attainment of efficiency, a number of complementary approaches are needed. A common procedure is benchmarking against *best practice.* This involves using tools such as balanced score cards, publishing forecasts and analyses, employing external evaluation by independent economists or political institutions such as the parliament. These have been found useful in evaluating core activities and preparing the way for measurement towards increased efficiency.

As regards measurement and attainment of efficiency, a number of complementary approaches are needed.

There may be arguments for being involved in non-core activities based on the notion of economies of scope, but we are fairly sceptical about this and believe these non-core activities should be scrutinized and weighed against the risk that assigning too many tasks to one institution leads to a lack of focus and inefficient management.

Non-core activities should be scrutinized and weighed against the risk that assigning too many tasks to one institution leads to a lack of focus and inefficient management.

Central banks can do much more than at present to measure policy efficiency, at least in the fields of monetary policy and payment systems policy. More external reviews, for example by parliament or independent academics, would also be desirable to create and maintain pressure for efficiency. The implementation of inflation targeting certainly facilitates policy evaluations, and measuring the efficiency of the payment system is relatively easy. In the areas of financial stability, supervision and regulation, efficiency is much harder to measure. Even in this area, however, it is possible to identify certain obstacles to efficiency that need to be dealt with.

Central banks can do much more to measure policy efficiency.

We believe that it is important for central banks continually to pose questions about objectives and cost minimisation, focusing on core activities and striving to perform them efficiently. Just as economic growth is predicated on discontinuing outdated methods, improving current methods and inventing new ones, the search for central bank efficiency must also be an ongoing process.

It is important for central banks continually to pose questions about objectives and cost minimisation.

Appendix:

Workshop on Central Bank Efficiency
Stockholm, 23–24 May 2003
Sveriges Riksbank

Programme

Friday, 23 May

Opening address by Lars Heikensten (Governor, Sveriges Riksbank):
How to promote and measure central bank efficiency

First Session: What should be the tasks of central banks?
Chair: Lars Hörngren (Swedish National Debt Office)
Edward Green (Federal Reserve Bank of Chicago):
What tasks should central banks be asked to perform?
Discussion by Staffan Viotti (Sveriges Riksbank)

Second Session: Efficiency in monetary policy
Chair: Claes Berg (Sveriges Riksbank)
David Longworth and Janet Cosier (Bank of Canada):
Efficiency in monetary policy – some approaches at the Bank of Canada
Mårten Blix (Sveriges Riksbank):
An empirical evaluation of inflation forecast based monetary policy
Discussion by Lars Svensson (Princeton University)

Third Session: Efficiency in payment system policy
Chair: Martin Andersson (Sveriges Riksbank)
David Humphrey (Florida State University): *Payment system efficiency*
Gabriela Guibourg and Björn Segendorff (Sveriges Riksbank):
Efficiency in the Swedish retail payment system
Mats Bergman (Uppsala University):
Payment system efficiency and pro-competitive regulation
Discussion by Ed Stevens (Federal Reserve Bank of Cleveland)

Fourth Session: Problems in applying efficiency measures to central banks
Chair: Tor Jacobson (Sveriges Riksbank)
Loretta Mester (Federal Reserve Bank of Philadelphia)
Sigbjörn Atle Berg (Norges Bank)
Erik Mellander (IFAU)

Saturday 24 May

Fifth Session: Efficient organization
Chair: Lars Nyberg (Sveriges Riksbank)
Éric Jondeau and Henri Pagès (Banque de France):
Benchmarking research in European central banks
Sandra Pianalto (Federal Reserve Bank of Cleveland):
Efficient organization: Lessons from the FED system
Arnoud Boot (University of Amsterdam):
How to divide responsibilities in sustaining financial stability: Lessons from EMU

Sixth Session: Panel discussion
Chair: Anders Vredin (Sveriges Riksbank)
Edward Green (Federal Reserve Bank of Chicago)
Arnoud Boot (University of Amsterdam)
Klaus Gressenbauer (ECB)
Nigel Jenkinson (Bank of England)
Elmar Koch (BIS)
Iftekhar Hasan (Rensselaer Polytechnic Institute)

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An *Inflation Reports* report

By Eric M. Leeper
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I was asked to evaluate the Riksbank's Inflation Reports by Anders Vredin, head of the monetary policy group at Sveriges Riksbank. The assignment included drawing comparisons among the Reports issued by the Riksbank, the Bank of England, and the Reserve Bank of New Zealand. This constitutes the entirety of my instructions. The content of this report, therefore, reflects my own priorities and biases in monetary policy analysis. Although several staff members at the Riksbank have provided constructive comments, they had no influence over the report's tone, criticisms, or recommendations.

I thank Jon Faust, Per Jansson, Stefan Palmqvist, Ellis Tallman, Staffan Viotti, and Anders Vredin for helpful comments.

Introduction

This report addresses questions about the Inflation Reports by three central banks that target inflation—Bank of England, Reserve Bank of New Zealand, and Sveriges Riksbank.

This report addresses a common set of questions about the *Inflation Reports* produced by three central banks that target inflation—the Bank of England, BoE, the Reserve Bank of New Zealand, RBNZ, and Sveriges Riksbank, the Riksbank. Although *Inflation Reports* are one of many documents used to prepare Board members for monetary policy decisions, they are primarily intended as external documents designed to communicate policy objectives and decisions to the public. This report evaluates both the internal and the external roles that the *Reports* play. When assessing the *Reports'* internal roles, I occasionally sit in the policymaker's chair at the briefing table.

Before launching into the evaluation, I should share some of my priorities and biases in policy analysis. To the degree possible, monetary policy authorities should be forthright in their statements of policy objectives, their understandings of the economy, and their descriptions of current and likely future policy actions. Inflation targeting countries have taken the crucial first step by laying out the policy objectives unambiguously.

Limitations in our knowledge about the structure of the economy and our inability to predict accurately future disturbances to the economy make monetary policy an inherently judgmental business. Economic science has not delivered *the* definitive model economy. Instead, it delivers a wide range of models—both theoretical and statistical—whose perform-

ance varies tremendously over time. Judgments about the relevance of those models for the policy questions at hand are necessary components of policy analysis. It therefore becomes important how economic judgments are arrived at, how they are scrutinized, and how the role that judgment plays in policy decisions gets communicated to the public. Analytical and statistical tools can help to arrive at and evaluate judgment calls. But they cannot substitute for judgment.

Four questions form the basis for the report. They are:

Four questions form the basis for the report.

1. Are the inflation forecasts credible?
2. How clear is the discussion of the current state of the economy?
3. Is there a coherent model or set of models underlying the presentation of the *Report*?
4. Does the *Report* hold the Bank sufficiently accountable for its decisions?

An appendix lists the questions along with the more detailed subquestions that I considered.

This report is based on my reading of several issues of the *Inflation Report* published by each Bank; another appendix lists this reading.

All three central banks clearly lay out their inflation targets in their *Reports*. The rationales for targeting inflation and for the chosen target inflation rate are sometimes discussed, but the rationales are not typically part of the inflation objective template that appears in *Reports*. Nevertheless it is clear the Banks pursue low inflation because they believe it stabilizes and encourages economic growth. The precise mechanism by which inflation interacts with economic growth is typically not discussed much. There's a good reason for this: the economics profession has yet to understand this important issue. Indeed, there is very little intellectual basis for preferring any particular low average inflation rate over another, although there is a strong basis for avoiding high and volatile inflations.

I have tried to be straightforward in my assessment of the *Inflation Reports*. That means I am also critical when I believe there is room for improvement. I hope the report is constructive and helpful.

I now address the four questions in turn and conclude with some tentative recommendations drawn from the report.

Are the inflation forecasts credible?

Forecasts are the parts of the Reports that I found most difficult to accept and to judge.

Forecasts are the parts of the *Reports* that I found most difficult to accept and to judge. For each Bank it is possible to trace how the verbal supporting discussion shows up in the inflation forecast. For example, the BoE (May 2003) clearly links short-run developments in the economy—in this case, a higher Council Tax—to a hump in inflation over the next six months. The Riksbank (2003:1) faults temporarily rising oil prices for higher than forecasted current inflation, but that is followed by lower inflation over the next year as oil prices unwind. Similarly, the RBNZ (March 2003) attributes inflation fluctuations to changes in the exchange rate and migration inflows. So there is a definite connection between the economic facts reported and the shape of the inflation forecast path in each *Report*.

STAYING FOCUSED

No single econometric model is used to generate the forecasts reported in the Report. This leaves open the question: exactly how are the forecasts generated?

Each Bank emphasizes that there is no mechanical method used to forecast inflation. I presume that does not mean that there is no "algorithm" for constructing the forecasts, for that would imply that no systematic approach is taken. Instead, I think it means that no single econometric model is used to generate the forecasts reported in the *Report*. This leaves open the question: exactly how are the forecasts generated? This question may well be addressed by a variety of supporting documents, some published in *Economic Reviews*, some published as downloadable files on the respective web pages. But a reader of the *Inflation Reports* alone cannot discern how forecasts are produced. I do not know how thoroughly the policymakers in the respective Banks understand the forecast production process. For me that understanding is essential, but for others it might not be.

It is easy to drown in the bathtub of economic statistics; little guidance is provided as to how each statistic translates into the inflation forecast.

To be sure, each Bank collects and reports a huge array of statistics. In this regard, the BoE wins the "fill the bathtub" award: report as many facts about the data as possible, regardless of their relevance or importance. In the case of the BoE, and to a lesser extent the Riksbank, it is easy to drown in the bathtub of economic statistics; little guidance is provided as to how each statistic translates into the inflation forecast. Are equity prices, hostilities in Iraq, oil prices, external demand, consumer and business confidence, house prices, capacity utilization, fiscal policy, and labor costs—only a fraction of the factors mentioned in the BoE's May 2003 "Overview"—all equally important determinants of future inflation? The Riksbank's "Inflation Assessment" (2003:1) is less expansive, but still

leaves the reader wondering what the contribution of each listed factor is to the forecast.

The RBNZ's analysis is refreshingly succinct and direct. It tends to concentrate on a small handful of key statistics, giving the reader a better focused understanding. The RBNZ can nonetheless be faulted for not providing quantitative links between the key statistics and the forecast path.

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Much of policy analysis is an exercise in signal extraction: what does the morass of economic data signal about future paths of inflation and real GDP? At its best, policy analysis extracts this signal by linking current conditions to future conditions, and leaves irrelevant minutia behind. At their best, *Inflation Reports* would do the same.

NEEDED: A MODEL OF INFLATION DETERMINATION

Missing from the *Reports* is some straightforward model of inflation determination—at least in the long run. One can glean from the discussions that at business cycle frequencies, which correspond to the Banks' typical forecast horizons, the state of resource utilization is central to each Bank's view of the inflation process. And at very short horizons, fluctuations in inflation would seem to be driven primarily by relative price changes—oil, food, taxes, mortgage interest, traded to nontraded goods—which change fixed-weight price indices. But what of longer horizons? Perhaps these are not much discussed because they extend well beyond the policy horizons on which the *Reports* focus.

Missing from the Reports is some straightforward model of inflation determination—at least in the long run.

But the long-run determinants of inflation are important because, regardless of the policy horizons in the *Inflation Reports*, one widely touted benefit of inflation targeting is the achievement of low inflation on average over time. By emphasizing the two- or three-year horizons common in *Inflation Reports*, central banks run the risk of losing sight of the overarching objective of low long-run inflation.

To understand this point, consider the standard New Keynesian model. In that model, long-run inflation is equal to the growth rate of the money supply less exogenously given potential GDP growth (adjusted for changes in velocity, which are usually taken to be zero). A lower target inflation rate requires a lower steady state money growth rate. Of course, with a Taylor rule for monetary policy, money supply is endogenous, so long-run inflation depends on the parameters of the policy rule (along with other parameters).

Over the business cycle, though, pricing is determined by markup behavior so real marginal costs govern inflation dynamics. This points out that over short- to medium-run horizons, resource utilization (or "overheating") appears to be central to inflation, while over long horizons it is

The question I raise is what determines the long-run inflation rate to be equal to the target inflation rate?

the traditional explanation—money growth or monetary policy behavior—that is central. Of course, inflation targeting proponents argue that the inflation target itself pins down the long-run inflation rate (assuming policy is credible). But this begs the question I am raising: what determines the long-run inflation rate to be equal to the target inflation rate?

To assess the credibility of inflation forecasts more completely, it is important to know about the longer horizon forecasts.

This theoretical argument is relevant for forecasting. In an econometric model of inflation, one might well find that short- to medium-run forecasts are driven by many of the factors on which *Inflation Reports* focus—relative prices, resource utilization rates, and so forth. But one would want to be certain that the model's long-run properties are also reasonable. Those forecasts can often be nailed down by cointegrating relationships that imply inflation emerges from the interaction of supply and demand for money (or, more generally, the interaction of monetary policy and private behavior). To assess the credibility of inflation forecasts more completely, it is important to know about the longer horizon forecasts. None of the Banks regularly discuss this point.

NEEDED: A BENCHMARK STATISTICAL MODEL

The benchmark forecast would be entirely mechanical and untainted by the staff's judgment.

All the Banks emphasize that their forecasts are judgmental. The view is that they can improve on model-based forecasts by bringing to bear the expertise of their analysts and a vast array of information not contained in a single forecasting model.[1] As a policymaker, I certainly want to tap into the staff's expertise and exploit all available information to arrive at accurate inflation forecasts. But I also want to have a clear sense of exactly how the staff's judgments are affecting the forecast. To gain that sense, I would find it helpful to have on hand a benchmark forecast produced by a good statistical model. The benchmark forecast would be entirely mechanical and untainted by the staff's judgment. Any number of methods could be used to produce statistical forecasts. For example, Doan, Litterman & Sims (1984) show how to produce forecasts under a variety of conditioning assumptions. The typical *Inflation Report* assumption of a constant short-term nominal interest rate, for example, can in principle be incorporated.

Then the staff can explain how their judgments shift the forecast away from the benchmark.

With the benchmark forecast to work from, the staff's job changes somewhat. First they explain what is driving the forecast in the benchmark model. This is likely to be more of a statistical description than an economic one. Then the staff can explain how their judgments shift the

[1] It is not obvious that judgmental forecasts uniformly dominate forecasts from Bayesian vector autoregressions, for example. Leeper & Zha (2002, 2003) and Robertson & Tallman (1999) show that inflation forecasts from a modest-sized identified VAR are as accurate as the Federal Reserve Board's Greenbook forecasts. This is not the place to pursue this debate.

forecast away from the benchmark. Indeed, this explanation would be a central theme of the staff's briefings of the Executive Board.

It would be interesting also to produce forecasts from the benchmark model conditional on the judgmental adjustments being made. One would have to think through exactly how to do this, but the spirit is to try to learn the extent to which the judgments are consistent with historical patterns of correlation. If the judgments do not disturb the historical patterns greatly, policymakers might be more assured. And when the judgments are at odds with history, the staff has a more compelling need to justify the deviations from the benchmark model. This approach provides policymakers with more information than they would have in the absence of the benchmark forecast. And it is information that is central to arriving at and communicating policy decisions.

And when the judgments are at odds with history, the staff has a more compelling need to justify the deviations from the benchmark model.

Another reason for producing a benchmark forecast is reproducibility. At present it is impossible to reproduce any of the inflation forecasts reported by the three Banks. Yet reproducibility is a hallmark of science. The "science of monetary policy" would seem to require reproducibility.[2] Admittedly, readers of an *Inflation Report* may still be unable to re-create the judgmental forecast even if they have access to the benchmark forecast. But the *Report* could address this issue by discussing in detail the staff's rationale for modifying the benchmark forecast. In policy analysis, as in research, reproducibility is tightly linked to credibility.

Another reason for producing a benchmark forecast is reproducibility.

A track record of forecast accuracy is another important ingredient for making credible forecasts, as is a detailed analysis of recent forecast errors. In this regard the Riksbank does a much better job than either the BoE or the RBNZ. The section entitled "Material for assessing monetary policy," which appears in the first issue each year, is an excellent addition to the *Report*. I found the assessment of why inflation in 2001 exceeded the target rate (and the previously forecasted rates) to be particularly insightful (*Report* 2002:1). The parts that attempt to identify the shocks driving inflation are especially good, and I would like to see more extensive treatment along those lines. For economics writing, this is about as suspenseful as it gets: I found myself hungering for more, as each potential explanation for the forecast error was proposed and then dismissed as unimportant. This kind of analysis is critical for both policymakers and the public.

A track record of forecast accuracy is another important ingredient for making credible forecasts, as is a detailed analysis of recent forecast errors.

The Riksbank and the BoE also compare their forecasts to the forecasts of others. Although helpful, it might be possible to improve on this by giving some perspective on the historical accuracy of the alternative forecasts. How well does the Bank do on average compared to other fore-

How well do the Banks do on average compared to other forecasters?

[2] I am borrowing Clarida, Gali, & Gertler's (1999) phrase.

casters? Are there particular states of the world when the Bank's forecasts tend to be less accurate? Are judgmental forecasts better than the statistical benchmark ones? Does any pattern of forecast errors emerge when comparing benchmark to judgmental forecasts?

A benchmark statistical model can also help with understanding the source of forecast errors.

A benchmark statistical model can also help with understanding the source of forecast errors. In a multivariate model one can compute how the error gets attributed to disturbances in other equations. When the model is identified, equation errors have behavioral interpretations that greatly aid in telling a story about the forecast mistakes. Even when the model is not identified, however, equation errors can point toward potential explanations. Based on footnote 37 of the 2001:1 Riksbank *Inflation Report*, I infer that the Bank's statistical models implied that most of the error in forecasting inflation was attributed to the "inflation equation error," which did not help identify the underlying source. This can happen in any forecasting model and the kind of analysis contained in the Riksbank's *Report* can fill in the interpretation of what an "inflation equation error" means for policy.

SIMPLE DESCRIPTIONS VERSUS SIMPLE BEHAVIOR

The simple rule of thumb is an incomplete specification of policy behavior.

The Riksbank's simple rule of thumb—raise (lower) the repo rate if forecasted inflation is higher (lower) than 2% one to two years ahead—may be useful as a pedagogical device. It is simple and easily understood. Precisely because it is simple, it is also a very incomplete specification of policy behavior. It appears not to be state contingent, yet policy behavior belies this appearance. As a policymaker I am interested in the contingencies: under what conditions do I raise the repo rate if inflation exceeds its target and by how much do I raise it? Do I adjust the rate whenever the forecast of inflation differs from 2% or only when it falls outside the tolerance range of 1%–3%? That is, I am well aware that policy choices are not simple.

A policy institution that tries hard to communicate its behavior in simple terms may create an internal dynamic that biases it toward behaving in simple ways.

This underscores the tension between describing policy simply and implementing policy simply. But simple descriptions of policy need not require simple policy behavior. A policy institution that tries hard to communicate its behavior in simple terms may create an internal dynamic that biases it toward behaving in simple ways. And simple behavior is not a virtue for policymakers.

Unfortunately, the rule of thumb, which was adopted primarily as a pedagogical device because it is simple and easily understood, may lead to misunderstandings when actual policy behavior is not simple. Heikensten (1999) is a thoughtful discussion that fleshes out the simple rule by

acknowledging that the rule of thumb is not followed mechanically precisely because monetary policy behavior is quite complex. [3]

CONSTANT INTEREST RATE ASSUMPTION

I am troubled by the "technical assumption" that the repo rate is constant at its current level over the forecast horizon.

I am troubled by the "technical assumption" that the repo rate is constant at its current level over the forecast horizon. The efficacy of the argument that a constant repo rate helps to communicate by being transparent hinges on the nature of the associated inflation forecasts. I looked at all the inflation forecasts from Riksbank *Inflation Reports* that are available on-line (1997:1-2003:1) and found *not one* instance when the two-year inflation forecast fell outside the Riksbank's tolerance range. Over this period the repo rate was changed 16 times, reaching a low of 2.90% and a high of 4.25%. Inflation meanwhile, varied from about –0.5% to slightly over 3% (CPI measure) and 0.5% to 3.5% (UND1X measure).[4]

These observations raise several issues. First, if the two-year forecast of inflation was consistently within the target range, why was the repo rate changed so often? Does this imply the Board rigidly follows the rule of thumb by reacting to *any* deviation of inflation from 2%? Or do these observations imply the Board is not following the rule of thumb because it changed the repo rate even when the two-year inflation forecasts did not indicate a need to change the rate? Second, given that actual inflation deviated from the target range—particularly on the low side—is there any systematic error in the two-year-ahead forecasts? Third, since the technical assumption of a constant repo rate is clearly at odds with actual behavior, do there remain transparency benefits from maintaining this assumption? Fourth, how likely is it, given the current state of the economy, that the repo rate will remain fixed?[5]

We do not see the rule of thumb in action.

Of course, one reaction to these observations is that over time the Riksbank didn't really hold the repo rate fixed. In principle, each *Inflation Report* conditions on a different constant level of the rate. Hence, there is no inconsistency between the fixed rate assumption and the two-year inflation forecast. But then we are in a situation where we do not see the rule of thumb in action because given the current level of the repo rate,

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[3] See also Heikensten & Vredin (2002).

[4] It would be interesting to examine inflation forecasts back to 1994 because the range of the repo rate expands considerably, reaching a peak of nearly 9% in the middle of 1995. If the older forecasts exhibit a pattern similar to the past seven years, the larger variance in the repo rate will make the "technical assumption" still more troubling.

[5] The Riksbank routinely discusses the economy beyond the two-year forecast horizon and observes that the constant repo rate assumption becomes more implausible over longer horizons. Leeper & Zha (2003) point out that a constant rate may be sufficiently at odds with historical policy behavior that it triggers the expectations formation adjustments that Lucas (1976) emphasized may undermine reduced-form forecasting models.

the inflation forecast is tolerable. I would be more convinced if the *Reports* showed inflation deviating from target under a constant repo rate, but being brought back to target through a higher (or lower) rate.

What are the effects of a change in the repo rate on Swedish inflation and output?

This brings me to the point that none of the *Reports* I examined discussed in any detail the economic dynamics triggered by a change in monetary policy. What are the effects of a change in the repo rate on Swedish inflation and output? Counterfactual policy experiments (or alternative policy scenarios) actually serve a dual purpose. First, they inform policymakers of the likely impacts of alternative policy choices. But second, and just as important, they demonstrate the dynamic impacts of policy. Only by firmly establishing that monetary policy can in fact affect inflation over the relevant horizons can the Bank begin to claim credit for improved economic performance. Without such evidence it is impossible to distinguish between good policy and good luck as the source of healthy economic performance.

The Riksbank's exercises appear to show that even substantial changes in the repo rate have little impact on the economy.

This is why I find the Riksbank's exercises that project conditional on a higher repo rate to be baffling. They appear to show that even substantial changes in the repo rate have little impact on the economy. Perhaps the nature of the exercise—raising the rate 20 basis points in one year and an additional 50 basis points in two years, as in the 2003:1 *Report*—does not lend itself to demonstrating the potency of monetary policy. What would the forecast look like if the rate were raised 50 basis points immediately and kept at that higher level for two years?

Another complaint about the constant repo rate assumption is that it may be another case where the desire to communicate simply could drive the Board to behave simply. Certainly Board members do not require the simplicity of a constant repo rate to understand the forecast. And I am skeptical that the public requires it either. And to the extent that inflation forecasts actually are not conditioned on a constant interest rate, the forecasts published in the *Reports* are potentially confusing to the public, who are forced to reverse-engineer the actual interest rate paths assumed in the forecasts.

As a policy maker I would eventually want to see a variety of identifications of the benchmark model. After all, identification is what most of every *Inflation Report* is trying to achieve. I think we would learn more if the identification were approached systematically and in a multivariate setting.

Finally, I am interested in forecasts that extend well beyond a two-year horizon.

Finally, I am interested in forecasts that extend well beyond a two-year horizon. This is partly a check on the properties of the forecasting models, but it is primarily to keep my eye on the prize of long-run price stability. The Riksbank does provide a section that discusses the economy beyond the forecast horizon. I found this to be rather chatty, not well

connected to the forecasts, and not as helpful as merely extending the forecast would be (unless after two years inflation is always forecasted to be exactly on target).

How clear is the discussion of the current state?

The bulk of every *Report* is devoted to describing and explaining the current state of the economy. Indeed, this is the comparative advantage of central banks the world over. Here the Riksbank strikes a balance between the detail of the BoE and the succinctness of the RBNZ. It is hard to say where along the continuum one should try to land. Much depends on the tastes of the particular policymakers. My tastes run toward succinctness, as focusing on a small set of facts helps me to digest the facts. But there can be circumstances when the current state cannot be adequately described by a handful of facts and more detail is needed. In general I would apply a vigorous filter to the information included in the *Inflation Report*, making certain to exclude anything that is unnecessary.

My tastes run toward succinctness, as focusing on a small set of facts helps me to digest the facts.

An important aspect of the description of the current state is inferences about whether recent shocks will have persistent or transitory impacts on inflation. By linking the current state to the inflation forecast, this part of the *Report* demonstrates why getting the current state right is so important. All three Banks do this well.

NEEDED: AN ANALYTICAL FRAMEWORK

What the Banks do less well is embed the detailed description of current data in an analytical framework that illuminates both why the data are important and how the current state feeds into the forecasts. The BoE and the Riksbank organize the presentation of facts into "supply" and "demand" or "determinants of inflation" categories, seeming to suggest an analytical framework is lurking in the background. But these labels do not fully substitute for a clear theoretical framework. Aggregate supply and aggregate demand are not terribly useful constructs when a given shock hitting the economy has both supply and demand impacts. The Banks do categorize the shocks roughly according to their sector of origin: external or internal, financial market or labor market, and so forth. This categorization is helpful so long as the various sectors are linked by an analytical framework. There may be more that could be done in this direction.

The framework need not take the form of an explicitly specified theoretical model. Indeed, as our understanding of the economy evolves, so too do our theoretical constructs. Even a "model" that sketches out the

The framework need not take the form of an explicitly specified theoretical model.

important sectors and critical aspects of behavior within those sectors would help to connect the economic statistics to the forecasts and, ultimately, to the policy choices made.

Offering the readers a clearer analytical framework is also a means for educating the readers about basic economic theory.

Offering the readers a clearer analytical framework is also a means for educating the readers about basic economic theory. All the Banks do this to some degree—often in special boxes. And the BoE has had some very nice pedagogy that clarifies some issues that might otherwise worry policymakers (for example, on velocity in November 2002 and on TFP and capacity utilization in May 2003). In many ways, the Banks seems to handle these "topics courses" better than the core course, which is connecting current and future states of the economy in an analytically convenient way.

Once we have before us some quantitative links between current and future states the policy debate becomes better focused.

There is much that can be done to lay out an analytical framework short of specifying a complete dynamic, stochastic general equilibrium model. It would be useful to be explicit and quantitative about certain aspects of the linkages between current and future states. For example, with all the emphasis on how the degree of resource utilization affects inflation, one might imagine ways to show this empirically. What is the link between the output gap or some other utilization measure and current and future inflation? How stable is the relationship? On average, what is the impact of a 1% increase in the output gap on the path of inflation? How does the impact depend on the source of the gap's increase? Is there a stable relationship in the opposite direction—from inflation causing future output gaps? How do we discern whether a statistical relationship is causal? Why is this distinction important to policymakers? What does the Phillips curve for Sweden look like? Is it stable? Are the judgmental forecasts of inflation and output growth consistent with the historical Phillips curve? I throw these questions out, not because I believe we should base policy on reduced-form relationships, but because once we have before us some quantitative links between current and future states the policy discussion becomes more productive and the policy debate becomes better focused.[6]

NEEDED: ALTERNATIVE SCENARIOS

The Report is supposed to be a forward-looking document, but most of the discussion of policy centers on the past.

Because central banks are so adept at describing the current state, I think too much emphasis is placed on it. This shows up in the *Inflation Reports* as well. The *Report* is supposed to be a forward-looking document, and every *Report* drives home this point. But most of the discussion of policy

[6] Recall that my perceptions of briefings at the Banks are based on the *Inflation Reports* alone. In most Banks many supporting materials of the kind I am advocating are put before Board members.

centers on the past: what did the Bank decide at its recent meetings and how did it reach that decision? It would be helpful to talk about how policy would respond if various alternative scenarios were to occur. For example, if growth in the euro area and the United States were to remain bogged down or to turn into a recession, how would the Riksbank react? One can imagine a range of the more likely scenarios and discuss their implications for Riksbank behavior. This kind of conversation probably takes place during Board meetings, but it would be helpful to have the staff think through the scenarios beforehand and provide some quantitative analysis to back them up.

As a policymaker I would also like to look at a variety of alternative scenarios for policy choices and their likely impacts on the economy.

As a policymaker I would also like to look at a variety of alternative scenarios for policy choices and their likely impacts on the economy. The Riksbank *Report* does routinely consider "forecasting inflation with a rising repo rate," though the other Banks are less consistent in considering alternative policy choices. I was surprised at how insensitive the forecast is to even a 75 basis point increase in the repo rate (2003:1). Zha and I found much greater sensitivity in U.S. data using an identified VAR (Leeper & Zha (2003)). The insensitivity can give the impression that counterfactual exercises are not very informative. It can also give the impression that changes in monetary policy have little effect on the Swedish economy.

Generating alternative scenarios is another instance where a formal econometric model is handy. Returning to the benchmark model, one could construct a projection conditional on hitting the inflation target and back out the most likely path of the repo rate for achieving this. This can be thought of as reporting how policy can get inflation back on target and how costly it will be to do so—an especially useful exercise when current inflation is above target, as it was in 2001. One could run a similar exercise conditional on the judgmentally forecasted path for inflation (or paths of inflation and output) and compute how likely the judgmental path is given history.[7]

Does a coherent model underlie the report?

One important component must be the link between policy decisions and current and future states—the transmission mechanism.

If one important component of an *Inflation Report* is the link between the current state and the objective of policy, another component surely must be the link between policy decisions and current and future states—the transmission mechanism of monetary policy. It is difficult to glean from *Reports* exactly what the Banks take that mechanism to be. Although both the BoE and the Riksbank dutifully report monetary aggregates,

[7] Doan, Litterman & Sims (1984) refer to this as a "plausibility index."

both also claim that the relationship between money and economic activity is unreliable. Is the reader to infer that the relationship between the policy interest rate and economic activity *is* reliable? And what about other aspects of the transmission mechanism? Does the short rate affect the economy primarily through the long rate? Is the effect of monetary policy on the term structure reliable? What roles do the banking and financial sectors play in transmitting monetary policy?

MORE QUANTITATIVE ANALYSIS

The literature does not deliver an unambiguous result for how quickly policy actions show up in inflation.

The Riksbank and the RBNZ push the view that monetary policy has its biggest impacts on inflation one to two years in the future. But the *Reports* I read include no empirical evidence to support this view (though they might cite supporting studies). Moreover, the identified VAR literature does not deliver an unambiguous result for how quickly policy actions show up in inflation. In U.S. data, reduced-form analysis and recursive VARs frequently report a lag of 18 months before there are noticeable impacts on inflation (Christiano, Eichenbaum & Evans (1999)). But in VARs that model the simultaneous determination of money and the interest rate, the lags are much shorter, even after imposing a zero contemporaneous effect. Leeper & Roush (2003), for example, find that when money and the interest rate are modeled simultaneously, inflation is significantly lower within six months of a monetary policy contraction. Moreover, inflation reaches its trough after more than two years, and it continues to remain substantially lower even four years later. In contrast, when the interest rate is determined before the money stock—as in most implementations of the Taylor rule—inflation is consistently lower only after 18 months.[8] At least in the United States, the jury is still out on how long (and how variable) are the lags between monetary policy and inflation.[9]

Banks rely to varying degrees on surveys, both of expected inflation and of business and consumer confidence.

The Banks seem to adopt an agnostic perspective on expectations formation. They turn to financial markets to extract expectations of short-term interest rates from forward rates and of inflation from the term structure. But they frequently refer to the recent past of inflation realizations as the primary determinant of expected inflation. Banks also rely to varying degrees on surveys, both of expected inflation and of business and consumer confidence. This agnosticism reflects the economics profession's uncertainty about how best to quantify expectations.

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[8] See also Leeper & Zha (2001).

[9] Identification schemes based on shape and sign restrictions on impulse response functions that do not impose predeterminedness of inflation can even get substantial immediate responses of inflation to a monetary policy shock, see Canova & De Nicolo (1998), Faust (1998), and Uhlig (2001)].

Despite the prominence of expectations-related data, it is difficult to discern whether the Banks attribute a distinct role to expectations in private agents' decisions. For example, *Reports* discuss the impacts of current fiscal policies, largely on aggregate demand, without mentioning how changes in expected taxes and government spending affect behavior. There is also remarkably little discussion of how expectations of monetary policy feed into current decisions about pricing and production. Yet stable inflation expectations are supposed to be a direct benefit of inflation targeting. It is difficult to reconcile the absence of expectations effects on private behavior with modern macroeconomic models.

All three Banks display a great reluctance to report results from quantitative analysis in their Inflation Reports.

All three Banks display a great reluctance to report results from quantitative analysis in their *Inflation Reports*. This is ironic given that the objective of monetary policy is described in terms of a quantitative target for inflation. To my mind quantitative analysis that explicitly connects the verbal discussion of the *Inflation Reports* to data goes a long way toward making the model (or models) underlying the *Reports* coherent and believable.

RISK ASSESSMENT

The Inflation Reports are very careful to discuss the "risks to the forecast."

Uncertainty plays a crucial role in policy decisions. Aware of this, the *Inflation Reports* are very careful to discuss the "risks to the forecast." It appears that these risks are handled informally. Despite this informal treatment, the thoughtful analyses of the reasons that the forecast may go wrong and the likely direction of the error are indispensable to policymakers.

The BoE and the Riksbank present fan charts for their inflation forecasts.[10] (The BoE also does so for output forecasts.) The charts report both the central tendency—typically the mode—and the dispersion of the forecast density function.[11] The risk assessment embodied in the fan charts is arrived at judgmentally, as Blix & Sellin (1999) describe.[12] To the extent that the fan charts accurately reflect the risks discussed in the text of the *Reports*, there appear to be at least two kinds of uncertainty captured: uncertainty about realizations of future shocks and uncertainty about the underlying model. It is unclear whether a third kind of uncer-

[10] The RBNZ reports only a central tendency measure in its forecast charts even though its *Monetary Policy Statement* discusses the risks to the forecast. It is interesting to ask why the RBNZ chose not to produce fan charts.

[11] Considering that the forecasts reported come from a single judgmental forecast, it is not clear why the forecast is treated as a mode.

[12] There is a peculiar asymmetry implicit in the production of the fan charts. Forecasts are explicitly judgmental, as are the staff's assessment of the degree of and bias in the uncertainty. Yet, as Blix and Sellin (1999) describe the procedure for producing fan charts, those judgmental components are inputted into a formula that produces the charts. This procedure seems to attempt to make objective the output of a process that is intrinsically subjective.

tainty—that arising from parameter estimates—is also rolled into the fan charts.[13]

Uncertainty about future shocks and model uncertainty interact.

Uncertainty about future shocks and model uncertainty seem often to interact in the *Inflation Reports*. Consider an example that runs through the three Banks' *Reports*: the possibility that external demand may turn out to be weaker (or stronger) than anticipated. At times this uncertainty increases, widening the fans, and in early 2003 external demand is more likely to be weaker than to be stronger, skewing the distribution of the inflation forecast downward. I interpret the widening of the fans as stemming from a mean-preserving spread in the distribution of shocks affecting the strength of foreign economies. But if shocks continue to have mean zero, which they must if they are "shocks," then the change in bias must arise from something like changes in the parameters in private agents' decision rules. The Riksbank mentions the interesting possibility that 9/11 and the Iraq situation may have increased risk aversion, making private decisions more conservative than usual. One way to think about this is that nonlinearities may be important, possibly because some set of parameters describing private behavior can shift stochastically over time in response to exogenous events. Of course attitudes toward risk are not observable, so it is important to acknowledge that we are choosing to interpret observed behavior in these terms. It may be possible to formalize this as uncertainty about the underlying model: there are two models with different degrees of risk aversion; the mode of the forecast averages the two models and the skewness reflects both our prior beliefs about and the fit of the two competing models.[14]

I would want clarification of precisely what information the fan charts communicate.

As one can see, a formal interpretation of the fan charts can be quite complex. But even if a Bank does not choose the formal approach, it is important to think carefully about the nature of the uncertainty being captured by the risk analysis. As a policymaker, I would want clarification of precisely what information the fan charts communicate. I would also want to know the extent to which the staff accounts for parameter uncertainty when reporting the risks.

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[13] Parameter uncertainty arises because model parameters are estimated rather than known with certainty. In typical applications, the model structure is taken as known with certainty, even when the parameter values are not. Model uncertainty reflects a more fundamental uncertainty stemming from the fact that we do not even know if we are estimating the "right" model.

[14] Brock, Durlauf & West (2003) is an excellent development of model uncertainty and model averaging in the context of stylized policy evaluation. Robertson, Tallman & Whiteman (2002) offer an alternative approach to producing forecast distributions that is not explicitly tied to model uncertainty.

If Banks routinely report risk assessments, then those assessments should be systematically evaluated.

If Banks routinely report risk assessments, then those assessments should be systematically evaluated, just as the accuracy of Banks' inflation forecasts are evaluated. Here two aspects suggest themselves.[15] First, if the main scenario in the *Inflation Reports* is a mode forecast, then we ought to observe that times when risks are tilted in favor of higher (lower) inflation tend to be followed by actual inflation rates that are greater (less than) forecasted inflation rates. If such an analysis finds no systematic connection between risk assessments and forecast errors, then the value of the risk assessments is called into question.

A second type of evaluation attempts to put risk assessments into a historical context. The Riksbank's annual section on "Materials for assessing monetary policy" includes a table that summarizes whether uncertainty surrounding the inflation forecast is "normal," "somewhat more than normal," "more than normal," "somewhat less than normal," or "less than normal." Over a long enough time period, these assessments, of course, should average out to "normal." But over the past few years I could find no instance when uncertainty was less than normal. This may have been a particularly volatile period or it may be a case where uncertainty tends always to be greater than normal.[16] In either case, this is the kind of internal consistency check that judgmental forecasts require, but that statistical forecasts automatically ensure.

A serious limitation of the informal handling of uncertainty is that it precludes reporting joint distributions of forecasted variables.

A serious limitation of the informal—meaning not model-based—handling of uncertainty is that it precludes reporting *joint* distributions of forecasted variables. Fan charts exist, implicitly at least, for both inflation and output growth. We know these are marginal distributions obtained from some joint distribution. But without knowledge of the joint distribution, policymakers cannot be informed of the probabilistic trade-offs associated with their policy choices. Even the most hard-line inflation targeting Bank frequently trades off hitting the target in the short run when the output costs of doing so are judged to be too high. Information from the joint distribution also helps policymakers assess the plausibility of the combined inflation and output forecasts.

Leeper & Zha (2002, 2003) explore this issue in some detail. Using an identified Bayesian VAR we simulate the joint posterior distribution of all the variables in the model. We construct projections of macro variables conditional on alternative paths for the policy instrument. In addition to reporting forecasts with error bands—the marginal distributions—we

[15] Actually, Stefan Palmqvist suggested these, and I thank him.

[16] As in Garrison Keillor's Lake Wobegone, Minnesota on the radio show "A Prairie Home Companion," where all the children are above average.

compute a variety of joint distributions.[17] These joint distributions allow the policymakers to ask complicated questions like: "What is the probability of a recession in the next two years and inflation below the target range under the following alternative policy choices?" This is precisely the kind of question that policymakers ask and to which Bank staffs have a difficult time providing quantitative answers.

Does the report hold the Bank sufficiently accountable?

Given the relatively benign economic conditions of the past few years, the Banks do take ownership of their decisions and any mistakes they made. There is much in all the *Reports* that speaks to this point. The Riksbank appears to be the most forthcoming in this respect, however. The section on assessing monetary policy is central to the mission of accountability. There are ways that I have mentioned by which that section can be strengthened to help make the forecasts more credible. Comparisons of rule-based monetary policies to actual policies—as the Riksbank 2003:1 *Report* does—can also be helpful in holding the Bank accountable. But of course those exercises are only as useful as the rules to which actual behavior is being compared. I am perhaps an outlier in that I do not use the Taylor rule as a litmus test for policy behavior, though as one of several rules studied it may be instructive.

Of course, in the past few years, the mistakes made by forecasts have been small. All Banks acknowledge throughout their *Reports* where their earlier views of the economy have turned out to be mistaken. The Riksbank devoted a great deal of careful analysis to a miss in inflation of less than 1 percentage point in 2001. The real question is how will the *Reports* read if the mistakes are substantially larger? If the miss is on the order of 5 (or –5) percentage points will the Banks be as forthcoming?

There are two categories of accountability: institutional versus individual and retrospective versus real-time.

There are two categories of accountability worth considering. The first is institutional versus individual accountability and the second is retrospective versus real-time accountability. *Inflation Reports* are quite conscientious in addressing institutional accountability retrospectively. But there could be more individual accountability taking place in real time.

[17] The joint posterior distribution reflects uncertainty about estimated parameters and about future shocks. The latter distribution is symmetric by assumption, but the former can be highly skewed.

Individual accountability simply refers to the fact that policy boards consist of several members, each of whom participates in the policy debates and may even vote on the policy decisions. Because the institutional structures vary across Banks, I will focus on the Riksbank. The *Inflation Report* is intended to present the Board's final majority view. The annual "Material for assessing monetary policy" section of the *Report* does discuss in general terms whether certain members expressed views contrary to the consensus. That discussion is derived entirely from the minutes of the policy meetings, which are not published in the *Report*.[18] Because my evaluation is based only on information appearing in *Inflation Reports*, I could not glean a good understanding of the true nature of the policy debate. The brief synopsis in the *Inflation Report* does not present any detailed alternative scenarios that were advocated by members for how policy might behave and how that behavior would affect the economy. Hence, based on *Reports* alone, I cannot infer accurately the degree to which individual Board members are held accountable for their decisions.

Based on Reports alone, I cannot infer accurately the degree to which individual Board members are held accountable for their decisions.

Because the *Reports* report on past policy decisions and they do so with the benefit of hindsight, they also do not give the reader a real-time sense of the debate. Although there are individual decision makers involved, the *Reports* present a largely monolithic perspective on the economy and on policy choice. Is it really the case that all Board members based their decisions on the identical set of information and the identical model of the economy, as the *Report* would seem to suggest? Or do some members come to the policy meeting with different information and a different model of how the economy works and how monetary policy affects the economy? If this kind of heterogeneity exists among Board members, it ought to be communicated in the *Report*.

The Reports present a largely monolithic perspective on the economy and on policy choice.

One way to approach this is to have Board members keep journals that record in real time their reactions to the economic facts presented in the *Report*. They could record when the facts and the *Report*'s interpretations of them accord with or differ from their own perceptions. Presumably, those differences form the basis for the policy debate and may underlie any decision to dissent from the majority opinion. Members will discover ex-post the extent to which they were right or wrong in their perceptions. Of course, this must be done in real time to ensure that members do not revise their own histories. This is essentially a micro-(individual-) level analysis of the sort already conducted in the "assessing monetary policy" sections of the *Report*. If this procedure is followed systematically, the individual members each acquire their own track record

[18] But are available on-line at http://www.riksbank.se under "Top News."

on policy decisions, which is a necessary step toward individual accountability.

A possible counter-argument to enhanced individual accountability is that the appearance of too much disagreement among Board members may undermine the Bank's credibility.

A possible counter-argument to this proposal for enhanced individual accountability is that the appearance of too much disagreement among Board members may undermine the Bank's credibility and disrupt financial markets. I am certain officials in the Federal Reserve System would push this argument. To be sure, in the United States at least, there would be some journalists and pundits who would spout that anything other than harmonious consensus among Board members signals the end of sound monetary policy. But policymakers cannot be deterred by such criticism.

I think the opposite could occur. Seeing that central bank officials are subjecting their viewpoints to careful scrutiny is likely to reassure the public that monetary policy decisions are in responsible hands. Healthy debate is an integral part of the democratic process. Moreover, if members know they are expected to make cogent and public arguments for their positions, the quality and thoughtfulness of their remarks will rise.

Tentative recommendations

Based on the text, it should not be surprising that I have some recommendations for how I would like to see policy analyses structured. Most of these recommendations are within the purview of the staff to implement; some require the Board to buy into the suggestions.

1. Avoid filling bathtubs: gratuitous detail of questionable relevance. Think sink: pertinent and succinct.

2. Engage but don't marry theory.

- offer analytical frameworks for inflation determination in the short, medium, and long runs

3. Quantify more things.

- use theory as a guide
- show the mapping from the current state to the forecasts
- estimate, quantify, and evaluate risk assessments

4. Estimate a benchmark forecasting model.

- make forecasts (more) reproducible
- justify judgmental adjustments relative to a benchmark model
- assess the plausibility of judgmental forecasts

- evaluate forecast errors

5. Conduct counterfactual experiments.

- offer policymakers a menu of policy options and their predicted impacts
- demonstrate the dynamic impacts of changes in monetary policy

6. Consider individual as well as institutional accountability.

These are not pie-in-the-sky recommendations. I do not advocate that Banks specify a single model that represents the Board members' diverse views about how the economy works. Neither do I advocate that Banks announce and follow a quantitative rule for setting their policy interest rate. These are simple prescriptions that cannot adequately describe the richness and complexity of actual policymaking. Pretending that policy is simple is a disservice to the public.

But I have listed a number of steps Banks can take to communicate more clearly how they understand the economy and how they reach policy decisions. Many of these steps involve careful theoretical and statistical analyses. Ideally the steps would integrate judgmental and model-based analyses to arrive at better policy decisions. Good monetary policy is rarely produced by relying solely on either intuition or mechanics.

I have listed a number of steps Banks can take to communicate more clearly how they understand the economy and how they reach policy decisions.

Appendix A: Questions addressed

The report is organized around general aspects of *Inflation Reports* from the three countries. I address the following issues:

1. Are the inflation forecasts credible?
a) Are the determinants of inflation clearly laid out?
b) Is the procedure for producing forecasts clearly explained?
c) Are the forecasts reproducible?
d) Can one distinguish between "objective" and "subjective" (or judgmental) aspects of the forecast?
e) How reasonable is the "technical assumption" of a constant policy interest rate over the forecast horizon?
f) Is there a track record of forecast accuracy to which the *Report* alludes and which the *Report* updates?
g) Is there a detailed discussion of recent forecast errors, including potential sources of the errors and implications of the errors for current and future policy choices?

2. How clear is the discussion of the current state of the economy?
a) Does the reader acquire an understanding of the economic events that produced the current state?
b) Is it explained why knowledge of the current state is relevant for achieving the stated objectives of policy?
c) Are data and analyses presented pertinent?
d) Does the *Report* devote too much attention to the current state relative to likely future paths of the economy?
e) What is the balance between discussion of current and future policy choices?
f) Are all necessary inputs to the decision process presented and discussed?

3. Is there a coherent model or set of models underlying the presentation of the *Report*?
a) Is there a clear connection between the Bank's view of the transmission mechanism of monetary policy and the data presented?
b) How is uncertainty handled?
(i) uncertainty about estimated parameters
(ii) uncertainty about realizations of future shocks
(iii) uncertainty about underlying economic model
c) What type of uncertainty do fan charts purport to capture?

4. Does the *Report* hold the Bank sufficiently accountable for its decisions?

a) Does the Bank take ownership of its decisions and any mistakes policy made?

b) Institutional versus individual accountability

c) Retrospective versus real-time accountability

Appendix B: Background reading

My report is based on a reading of the following *Inflation Reports*:

Bank of England, *Inflation Report*, May 2002, November 2002, February 2003, May 2003.

Reserve Bank of New Zealand, *Monetary Policy Statement*, March 2002, November 2002, March 2003.

Sveriges Riksbank, *Inflation Report,* 2000:1, 2001:2, 2002:1, 2002:3, 2002:4, 2003:1, and portions of *Reports* dating back to 1997:1.

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Financial bubbles and monetary policy

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We look here at a number of periods in which asset prices have displayed bubble behaviour, that is, an apparently over-optimistic rise followed by a crash. We consider some major issues such as how a bubble can arise and how bubbles can be identified. Our main concern, however, is a central bank's approach to such price developments: should it try to identify and counter the bubble at an early stage or wait until the bubble has burst before taking measures to limit its harmful effects? We consider that a largely preventive strategy is ruled out by the lack of knowledge about how a price bubble can be countered with measures of monetary policy. Still, there are grounds for continuing to analyse financial asset markets and identifying different types of imbalances, thereby possibly helping to discourage price bubbles and their deleterious consequences.

Price bubbles can be a serious threat to the national economy.

Bubbles in financial prices have attracted the attention of many academics and policy-makers in recent years, not least in the analysis of monetary policy. A contributory cause is the troublesome situation in the Japanese economy, which is considered to stem to a high degree from the asset bubble that burst in the early 1990s. But while there is relatively widespread agreement on price bubbles as a very serious threat to a national economy, there is no consensus on whether or how such bubbles can be prevented with measures of monetary policy. Moreover, identifying price bubbles can be difficult. This article therefore aims to map the state of knowledge about how monetary policy should relate to financial bubbles. Measures in a situation where a burst price bubble threatens financial stability are considered only in passing.[1]

First we look at the relevance of financial bubbles for the monetary policy analysis and present a general account of the concept of a price

[1] Steeply falling asset prices, indicating that a bubble has burst, call for an assessment of the potential threat to financial stability. In addition to measures of interest rate policy, a part can be played by controls of various kinds; see Collyns & Senhadji (2002) and the G10 report "Turbulence in Asset Markets: The Role of Micro Policy", Contact Group of Asset Prices, September 2002.

bubble. This is followed by a review of the literature on why financial price bubbles can arise. The most familiar presumed financial price bubbles are then described with reference to such issues as how and why they developed and the part that monetary policy played. Finally we present published views on how financial asset prices and, in particular, bubbles can be taken into account in the formation of monetary policy.

Financial price bubbles – an introductory survey

WHY SHOULD FINANCIAL BUBBLES INTEREST A CENTRAL BANK?

Several reasons why asset bubbles are relevant for a central bank have been put forward.

In general terms, a bubble in financial prices implies a period during which asset prices rise rapidly to unreasonably high levels that are not sustainable and then, when the bubble bursts, fall steeply.[2] At least three reasons have been put forward for asset bubbles being relevant for a central bank.

(i) Bubbles can threaten financial stability. Historically, periods with rapidly rising asset prices have often been associated with credit growth. The root of the problem is an excessively optimistic appraisal of investment opportunities, often reflected in an asset price bubble. When investments fail to meet expectations, loan losses are liable to occur. Moreover, the sharp price fall that occurs when a bubble bursts reduces the value of the assets with which loans have been secured and this can add to the loan losses of the credit institution. In extreme cases a bank may then fail, possibly leading to the collapse of the financial system as a whole. The Japanese experience clearly illustrates the huge costs this may entail. For a central bank, an important task is to try to counter such a development, for instance by providing liquidity and emergency credit.[3]

(ii) Bubbles can lead to undesirable real economic fluctuations. Even if a bank crisis as per *(i)* can be avoided, a bubble that bursts may have undesirable real economic consequences. Before the bubble bursts there is a risk of high asset prices leading to over-investment, while a burst bubble may pose the opposite problem. Here, too, the costs are evident from the Japanese experience. In addition, the abrupt shifts in asset prices entail arbitrary redistributions of wealth and impair savers' possibilities of arranging a reliable reallocation of resources over time.

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[2] What constitutes levels that are unreasonable and unsustainable is considered on pp. 121 f.
[3] See Daltung (2001).

(iii) Bubbles can lead to poorer price stability. A relatively new argument, put forward for example by Kent & Lowe (1997), is that, besides allowing for the role of asset prices in the prospects for inflation, in the formation of monetary policy even a central bank which focuses solely on price stabilisation can have cause to consider bubbles for preventive purposes. The crucial assumption behind this conclusion is that a burst bubble results in a very troublesome situation where the effectiveness of the financial markets and thereby of monetary policy is greatly reduced, making price stability difficult to achieve. Once again, Japan provides an example of a collapse in asset prices leading to a deflationary trend whereby real interest rates have become unduly high even though the central bank has lowered the nominal interest rate virtually to zero. In order to avoid such a situation, the best option may be to tighten monetary policy with a view to preventing a bubble even though a traditional, forecast-based assessment favours a more expansionary policy.

It should be borne in mind that the potential economic hazard from an asset-price bubble depends on the environment in which the bubble develops. Considerable financial instability will be less likely in the absence of a concurrent unbalanced development of credit. The historical record suggests that periods characterised by price stability have had smaller elements of asset bubbles and a greater degree of financial stability.[4] But there have been notable exceptions and, as we discuss later, the relationship between price stability and financial stability is not entirely straightforward.

Note that the potential economic hazard from an asset-price bubble depends on the environment in which the bubble develops.

PRICE BUBBLES AND FUNDAMENTAL VALUATIONS

In order to make any progress in an analysis of price bubbles it is necessary to define what a price bubble is. That is not a simple matter. At times, moreover, it is pertinent to distinguish between a bubble in a *wide* sense and a bubble in a *narrow* sense (or a *genuine* bubble). In general, a broad definition of a bubble in financial prices is the *difference between the current market price and a fundamental price*. Defined in such general terms, a price bubble can mirror a wide range of phenomena, for example financial noise, an over-reaction to new information or a mistaken assessment of fundamentals, and it can be either positive or negative.

A broad definition of a bubble in financial prices is the difference between the current market price and a fundamental price.

Determining the extent to which an asset is wrongly valued accordingly involves forming an opinion about its fundamental value. A fundamental value of the Swedish stock market, for instance, mainly rests on the long-term future earnings of the listed companies and the market's

Determining the extent to which an asset is wrongly valued involves forming an opinion about its fundamental value.

[4] See Bordo & Wheelock (1998).

required return but in principle it should also include cyclical and monetary policy factors.[5] There are two reasons for including a cyclical component. One is that it results in a more precise expression of the fundamental value, which may be important when it comes to estimating the degree of any evaluation error. The other is the need to assess the extent to which monetary policy may affect equity prices and thereby possibly counter the development of a bubble. Monetary policy's effect on stock markets has been analysed to just a limited extent and the work that has been done suggests that on average the influence of monetary policy on equity prices is not particularly great (for a review of the literature, see Sellin (2001)).

A CLOSER LOOK AT BUBBLES

The serious pricing errors are those we call a bubble in the narrow sense, where the price is largely disconnected from the fundamental valuation.

For many purposes the discussion above of bubbles in the sense of deviations from fundamental values is too general. As a rule, pricing errors may not be a major cause for concern, at least from the viewpoint of monetary policy, if they represent a relatively brief and – in their context – minor deviation from the fundamental level. The serious pricing errors are those we call a bubble in the narrow sense (a genuine bubble), where the price is largely disconnected from any sort of fundamental valuation and is subject instead to the mechanisms of pyramid games (investors are prepared to buy an asset for a higher and higher price in the hope that the price will go on rising in the period during which they intend to hold the asset).[6] A closer look reveals that a genuine bubble has the following characteristics:

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[5] In general terms, the price of an asset is given by the expected discounted value of future income. A common simplified assumption in the case of stock markets is that the required return on equity (R) and the growth of dividends (g) are constant, which gives Gordon's valuation: $F(t) = d_t \frac{1+g}{R-g}$, where $F(t)$ is the fundamental value and d_t is the dividend in period t. A more precise expression of the fundamental price is obtained by taking into account that both the required return (which is closely connected with the interest rate) and future dividends are dependent on the business cycle. By specifying monetary policy's impact on interest rates and economic activity (measured as the output gap, for example), it is possible in principle to derive a monetary policy component for the expression for the fundamental value. In practice, however, price valuation models that include a monetary policy component are scarce, though an example is to be found in Boyle & Peterson (1995).

[6] A price bubble can be defined more formally: suppose that in period t the expected return on equity, R_t, is given by the expected dividend in the next period (d_{t+1}) and the expected capital gain in accordance with $R_t = \{d^e_{t+1} + P^e_{t+1} - P_t\}/P_t$ where P_t is the stock market price in period t and the superscript e denotes the expected value. Assume for simplicity that the required return is constant ($R_t = R$) and solve for the price: $P_t = \{d^e_{t+1} + P^e_{t+1}\}/[1+R]$ (i). Substituting the corresponding expressions for future prices k times in (i) gives $P_t = F(t,k) + B(t,k)$ (ii), where the price equals the sum of the expected discounted dividends in the following $k+1$ periods, $F(t,k) = \sum_{n=1}^{k+1} d^e_{t+n} / (1+R)^n$, plus the expected discounted price in period $t+k+1$, $B(t,k) = E_t \left[P_{t+k+1}\right] / (1+R)^{k+1}$. Introducing the condition that the "bubble term" $B(t,k)$ approaches zero as k approaches infinity gives the fundamental solution as the discounted sum of all expected future dividends. Non-fundamental solutions accordingly correspond to solutions where the "bubble" $B(t,k)$ does not approach zero as k approaches infinity.

For as long as a bubble continues without bursting, via a rapid increase in value it provides a return that exceeds the return on a fundamentally valued asset. This implies that after a time the bubble will be the dominant component of the price.

Intuitively it can be said that, notwithstanding the risk of it bursting, a bubble is sustained because it provides an excess return for as long as it does not burst. The above characteristics also imply that for certain types of asset, bubbles are unlikely to form. In general, the following principle holds:

Bubbles do not occur for assets that have a natural upper price limit and/or a limited duration.

The reason why assets with a limited duration ought to be immune to bubbles is that, according to the above characteristics, a bubble would give the asset a value that exceeds the final amount due to the holder, which is not possible. Bonds are an important class of assets for which bubbles, according to this principle, do not occur. It also seems reasonable that bubbles occur most readily when a fundamental valuation is complex, as is the case, for example, with equity, in that future earnings and dividends are difficult to predict. On the other hand, there have been instances of price bubbles for residential property even though a fundamental valuation here is not as difficult.

It seems reasonable that bubbles occur most readily when a fundamental valuation is complex, as is the case, for example, with equity.

Why do bubbles occur?

RATIONAL BUBBLES

The mechanisms behind the formation of a price bubble need to be understood in order to arrive at a better picture of the part that monetary policy may play in this process. This is not a simple matter but we can start by noting that for the individual, it may not be irrational to invest in an asset with a price bubble. In the so-called rational bubble constructed by Blanchard & Watson (1982), people are prepared to invest even though they correctly perceive a risk of the bubble bursting, the reason being that the return is sufficiently large as long as the bubble does not burst.[7] Neither does a rational bubble necessarily indicate a complete disconnection from fundamental factors; it can occur because the price overreacts to

A rational bubble does not necessarily indicate a complete disconnection from fundamental factors; it can occur because the price overreacts to fundamental factors.

[7] Blanchard & Watson assume that the price bubble, B_t, develops in accordance with

$$B_{t+1} = \begin{cases} ((1+R)/q)B_t + e_{t+1} & \text{with probability } q \\ e_{t+1} & \text{with probability } 1-q \end{cases}$$

It is readily seen that the expected return is R if the random term e has a zero mean. Given that the bubble does not burst, the return, $(1+R)/q$, exceeds R by just enough to compensate for the risk of the bubble bursting.

fundamental factors.[8] The observation that for the individual it can often be rational to invest in price bubbles implies that the self-regulating market forces which should normally prevent bubbles from occurring are largely absent.

MARKET IMPERFECTIONS AND PSYCHOLOGICAL FACTORS

A question that presents itself is whether price bubbles are a consequence of shortcomings in the functioning of financial markets.

While it may be rational for an individual player to invest in an existing bubble, there is still the problem of how a bubble begins (see e.g. Diba & Grossman (1988)). A question that presents itself is whether price bubbles are a consequence of shortcomings in the functioning of financial markets. Allen & Gale (2000) have shown, for instance, that loan-financed (rational) investors willingly invest in assets for which prices are higher than they would be if everyone only invested their own capital. In this way and provided the creditors are ignorant of how the borrowed funds are being invested, rational investors can push the price up. As the loan-financed investors carry just a minor share of any loss, while their return may be very high if the investment does well, their situation can be said to resemble the purchase of a call option. Drawing on option theory, this also means that the more uncertain the return, the more they will be prepared to pay for an asset.[9]

There seems to be a herd mentality among investors that can contribute to asset price deviations from fundamental values.

The analysis in Allen & Gale (2000) demonstrates a market imperfection of principle importance. Asset market players make investment decisions on the understanding that the costs of a poor decision will be shared with others. A portfolio manager may be inclined to invest in potential bubble assets on account of the bonuses that may accrue if the investment does well (the bubble continues), while the costs of a poor outcome (the bubble bursts) will be carried to a large extent by others. Psychological factors probably reinforce this mechanism. Discontent over a bad portfolio choice when the asset bubble bursts is mitigated by many others being in the same position. A manager who bases the portfolio on a more fundamental valuation of asset prices will perform less well than the majority of colleagues as long as the bubble continues and the impression of a lone loser may be difficult to bear even if the strategy does generate a better return in the longer run. There seems to be a herd mentality among

[8] See Froot & Obstfeld (1991), who introduce what they call an "intrinsic bubble" (because it is determined as a (non-linear) function of fundamental determinants of the asset price, whereas an ordinary bubble is given exogenously). In this case the deviations from the fundamental value can be related to fundamentals but the relationship between the price and fundamental factors leads to an unduly rapid increase in value.

[9] Negative bubbles are also conceivable according to Allen & Gale (2000). A steep fall in asset prices (e.g. because a positive bubble bursts) may force banks to realise assets and thereby trigger a further price fall; such a situation with insufficiently liquid markets can give rise to a negative price bubble.

investors that can contribute to asset price deviations from fundamental values.[10] The new line of economic research — Behavioural Finance – that has been developed in recent years, for example with the aid of experimental psychology, aims to understand the mechanisms described here and why financial price formation sometimes deviates from fundamental values.[11]

EMPIRICAL ANALYSIS OF BUBBLES AND MACROECONOMIC IMBALANCES[12]

The historical survey shows that bubbles tend to arise in connection with an undue expansion of credit that then accentuates the threat to financial stability.

Another approach to asset bubbles involves extending the analysis to include other macroeconomic imbalances. This also makes it easier to assess whether a future correction of asset prices may give rise to other problems, such as a threat to financial stability. A possible bubble that develops in the absence of other imbalances implies not only that the costs of it bursting will be more limited but also that it is actually not a bubble. In an analysis based on indicators,[13] Borio & Lowe (2002) demonstrate that financial crises are frequently preceded by a combination of price bubbles and indications of other imbalances (in credit and investment). The historical survey that follows shows that bubbles tend to arise in connection with an undue expansion of credit that then accentuates the threat to financial stability. According to Bordo & Wheelock (1998), a lack of price stability has often contributed to an exaggerated development of asset prices and ultimately to a financial crisis. In the historical analysis in the next section, however, there are instances of price bubbles and financial instability occurring notwithstanding price stability; this has fuelled some criticism of an unduly restricted implementation of price stability policy. Thus, for example, Cecchetti, Genberg, Lipsky & Wadhwani (2000) point out that a comparatively tight monetary policy to counter a nascent price bubble can sometimes be justified even though it is not indi-

[10] For an instructive survey of how herd behaviour affects price formation in financial markets, see Ericsson (1995); see also Chapter 10 in Shiller (2001).

[11] For an introduction to behavioural finance, see Fromlet (2001). See also Barberis & Thaler (2002).

[12] For reasons of space we refrain from a closer discussion of how the occurrence of price bubbles can be tested and identified with statistical methods but can mention some contributions to this field. For direct tests of specific bubble models, see Flood & Garber (1980), Flood, Garber & Scott (1984) and Nydahl & Sellin (1999). West (1987) proposed the use of an indirect specification test for determining the occurrence of bubbles. An alternative approach (initiated by Hamilton & Whiteman (1985) and Diba & Grossman (1988)) involves testing whether prices and fundamental variables (primarily dividends) show a similar trend, which should be the case in the absence of price bubbles. Evans (1991) showed that the most common types of statistical test could not detect periodically collapsing bubbles; the trend test has recently been developed so as to be capable of detecting this type of price bubble (see e.g. Hall, Psaradakis & Sola (1999) and Psaradakis, Sola & Spagnolo (2001)).

[13] The analysis, developed from a method presented by Kaminsky & Reinhart (1999), shows that when indicators of macroeconomic imbalances exceed certain thresholds, this often predicts future financial crises.

cated by inflation prospects. In any event, the interaction between different types of macroeconomic imbalances in the light of the rapid development of financial markets is an important field for future research.

Historical experience

THE 1929 STOCK MARKET CRASH – A BURST BUBBLE OR MISTAKEN MONETARY POLICY?

The issue of whether the US stock market crash in 1929 was the result of a speculative bubble is still being debated

An issue that is still being debated is whether the US stock market crash in 1929 was the result of a speculative bubble that the Federal Reserve deliberately burst rather than being due to an unnecessarily restrictive monetary policy that countered a sound development of equity prices motivated by fundamentals. According to Galbraith (1954), it was a bubble that burst. Shiller (2001) is more tentative but considers that over-reactions to fundamentals led to an over-valued stock market. Fisher (1930), on the other hand, claims that the stock market was presumably undervalued even before the crash in autumn 1929! In a recent analysis, McGrattan & Prescott (2001) concluded that Fisher was right. While it is difficult to tell which assessment is correct, the 1929 crash and the subsequent depression do prompt three interesting observations on the role of monetary policy:

(i) Monetary policy was crucial for the stock market's development

There is a relatively broad consensus that US monetary policy was crucial for the stock market crash of 1929, though opinions differ as to whether this was appropriate. The 1929 crash is therefore an important illustration of an appreciable stock market effect from monetary policy. It is also clear that the Federal Reserve explicitly intended to counter a speculative bubble.

(ii) It is hard for a central bank to avoid criticism even when it acts correctly

The debate about how the Federal Reserve acted in connection with the 1929 crash shows that criticism is hard to avoid for a central bank that actively tries to counter a bubble because there is always a wide range of conceivable interpretations. The equity price fall that a successful intervention entails is perceived by many shareholders as an appreciable and unnecessary cost, while the gain inherent in preventing a considerably

more dramatic fall is less tangible. It may also be the case that the earlier and more effectively a central bank acts, the harder it will be to demonstrate that a serious bubble was forming.

(iii) Shortcomings in monetary policy after the crash

The Federal Reserve's initial reaction to the 1929 crash was to lower the interest rate and maintain the money supply. But this line was abandoned relatively soon and policy was tightened to meet the requirements of the gold standard. This is considered to have contributed to problems in the bank sector in particular, thereby exacerbating the depression in the 1930s.[14]

THE 1987 STOCK MARKET CRASH

Although the equity price fall on 19 October 1987 was the largest to date for a single trading day, the aftermath was just a brief parenthesis: the US stock market had fully recovered two years later. Still, some observations can be made:

(i) Computerised trading may have contributed

There is no generally accepted explanation for why the stock market fell so dramatically in October 1987. The speedy recovery and the favourable trend that followed make it less likely that the fall represented a correction to more fundamentally motivated levels. It has been suggested instead that computerised trading triggered numerous signals to sell and thereby greatly accentuated what had initially been a relatively limited downward tendency. Although this theory has not been confirmed, the events of 1987 did elicit restrictions on computerised trading.

(ii) Vigorous reaction by the Fed

The resolute action by the US Federal Reserve, with interest rate cuts and commitments to provide liquidity, is considered by many to have been the main reason why the harmful effects of the 1987 crash could be limited. The Fed had learned from the 1930s' depression and there was a greater awareness of the financial system's vulnerability when asset prices fall dra-

[14] See e.g. Feldstein (1991).

matically. It is even conceivable that the Fed was too successful in the sense that the stock market's prompt recovery may have encouraged undue optimism about the excellence of equity investment in general and its capacity to recover in particular. The speedy recovery may also have benefited from a favourable macroeconomic situation with strong export demand.

THE ASIA CRISIS

The Asia crisis seems to confirm that an exaggerated price trend is liable to follow a period of strong economic development and credit growth.

The financial collapse that hit the so-called Asian tiger economies in 1997 led to a serious setback in economic growth. While over-valued asset prices as a result of a credit boom clearly contributed here, other factors were also important.[15] The combination of fixed exchange rates, relatively low interest rates elsewhere and implicit government guarantees had generated a massive inflow of foreign capital that turned into a large outflow when the crisis occurred. Radelet & Sachs (1998) characterise this as financial panic on the part of investors and, later, governments rather than the result of a burst price bubble. Corsetti, Pesenti & Roubini (1998) point instead to the relationship between the poor macroeconomic situation and the extent to which the crisis hit different countries. The part that a conceivable asset price bubble may have played during the crisis is difficult to identify but even the Asia crisis seems to confirm that an exaggerated price trend is liable to follow a period of strong economic development and credit growth. An unusual feature of the Asia crisis is the direct stock market interventions in Hong Kong. When capital outflows threatened to lower the Hong Kong exchange, the Hong Kong Monetary Authority supported the market by purchasing equity. In the period 14–28 August 1998 the Authority's purchases totalled HK$ 118 billion (one fifth of Exchange Funds' total assets) and succeeded in stabilising the market.

THE JAPANESE BUBBLE

A favourable economic trend led to excessive optimism whereby demand for assets was over-stimulated and their prices rose sharply.

The strong upward trend in Japanese asset prices in the second half of the 1980s and the subsequent fall in the early 1990s is perhaps the clearest and most important example of an asset bubble. A variety of circumstances appear to have contributed to the formation of the bubble. For one thing, fundamental factors in the early 1980s pointed to a rising stock market. In the decade 1984–94, which included a burst bubble, the

[15] An extensive bibliography on the Asia crisis will be found at Nouriel Roubini's website (www.pages.stern.nyu.edu/globalmacro).

Nikkei index did in fact double its level.[16] The strength of the Japanese economy was then confirmed by its performance in the 1980s, which justified a good deal of the initial equity price rise. Okina, Shirakawa & Shiratsuka (2001) consider that this performance led in time to excessive optimism and that this, together with an over-stimulation of asset demand, meant that asset prices rose sharply.

The strong asset price rise was fuelled by an unduly expansionary monetary policy in the second half of the 1980s.

Okina et al. also consider that the strong asset price rise was fuelled by an unduly expansionary monetary policy in the second half of the 1980s. In their opinion, this policy was due to a variety of circumstances. From autumn 1985 monetary policy had been characterised by a lowering of the instrumental rate that brought this down to 2.5 per cent in February 1987 in accordance with guidelines adopted at a number of meetings on international policy coordination.[17] The aim was to stimulate domestic demand as a way of boosting import demand and thereby creating more balanced foreign trade. One purpose of the policy coordination was to stabilise exchange rate fluctuations between the leading currencies.

It is conceivable that, via its effects on Japanese monetary policy, the 1987 stock market crash did tend to fuel the Japanese asset bubble.

In the spring and summer of 1987 the Bank of Japan (BOJ) began to express concern about the expansionary monetary conditions; market expectations derived from the yield curve started to count on interest rate hikes. The tighter tendency was international, with interest rate increases in the USA and Germany. The stock market crash on 19 October 1987 then put an end to the planned realignment and BOJ again chose to participate in a coordination of policy and its line remained expansionary. It should be noted that the fall in the Japanese stock market in autumn 1987 was modest as well as brief and it was accompanied by an acceleration of economic growth. It is therefore conceivable that, via its effects on Japanese monetary policy, the 1987 stock market crash did tend to fuel the Japanese asset bubble. It was not until mid 1989, when a new central bank governor had been appointed, that a tightening of Japanese monetary policy was initiated but by that time the asset bubble was approaching its maximum. It is not clear to what extent this late tightening contributed to the bursting of the bubble at the beginning of the 1990s but the fact that asset prices also fell in this period in other parts of the world (including Sweden) suggests that international factors were involved as well.

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[16] The Nikkei index was around 10,000 in 1984 and then climbed to a high of almost 40,000 around the turn of 1989. The bubble burst soon after that and in the following years the index dropped to about 20,000; there has been a further decline since then.

[17] Mainly the Plaza Agreement in September 1985 and the Louvre Accord in February 1997.

A marked tightening of monetary policy at the beginning of 1988 might have prevented or at least subdued the Japanese asset bubble.

As to whether a more restrictive monetary policy could have prevented the Japanese asset bubble, Okina et al. consider that this would have been difficult *in practice* given the problem of determining fundamental asset values, plus the fact that inflation was low while the bubble was developing. In a simulation, however, Bernanke & Gertler (1999) show that a normal pattern of monetary policy reactions[18] would have given a marked tightening at the beginning of 1988 that might have prevented or at least subdued the Japanese asset bubble. It has also been suggested that a more explicitly directed Japanese policy for price stabilisation – for example inflation targeting, possibly preceded by a temporary fixed exchange rate regime (at a weak yen rate) – could have helped to counter the deflationary tendency that has characterised the Japanese economy in recent years.[19]

A point to note is that the burst bubble proved very costly in terms of an extensive bank crisis and a weak real economy.

Finally it can be noted that the burst bubble proved very costly in terms of an extensive bank crisis and a weak real economy. Chirinko & Schaller (2001) find that the high asset prices led to considerable overinvestment, which entailed large costs in the form of unutilised or underutilised capital stocks. Moreover, falling consumer prices make it difficult to obtain the low (presumably negative) real interest rates that are needed to stimulate the Japanese economy. Okina et al. conclude that monetary policy should adopt a more preventive approach to the risk of bubbles.

THE IT BUBBLE

The notion of a new economy that was put forward to explain the rising stock market in the latter 1990s is a traditional phenomenon.

In the past century there have been numerous sharp ups and downs on stock markets in the United States as well as elsewhere.[20] Shiller (2001) notes that episodes with rapidly rising stock markets in the United States have been characterised by talk of a "new era": strong equity price increases are motivated by some new and favourable development in the economy. Thus, the notion of a new economy that was put forward to explain the rising stock market in the latter 1990s is a traditional phenomenon.

It is mainly in the latter 1990s that there are indications of a possible IT bubble.

Equity prices rose very markedly in the United States during the last two decades of the twentieth century but it is mainly in the latter 1990s that there are indications of a possible IT bubble. From January 1998 to February 2000 the increase in the broad Standard & Poor 500 index

[18] A normal pattern refers to the interest rate rule that Bernanke & Gertler (1999) estimated for BOJ.
[19] See e.g. Svensson (2001).
[20] For a survey of dramatic ups and downs on stock markets outside the United States, see Chaper 6 in Shiller (2001).

amounted to 50 per cent as against as much as 206 per cent for the technology dominated Nasdaq index, while a more specifically internet index (see Ofek & Richardson (2001)) shot up almost 1,000 per cent.

Hobijn & Jovanovic (2000) argue that the notion of a bubble is not needed to account for the stock market trend. They present a model that explains the development of equity prices in connection with the introduction of a new, revolutionary technology. According to this model, in the 1970s the value of listed equity was depressed by expectations of large costs for investment in new IT technology. The rising stock market in the 1980s and 1990s mainly stems, entirely in accordance with the model, from newly listed companies that had developed and/or benefited from the new technology.

The dramatic increase in equity prices was followed by an even more dramatic fall.

The dramatic increase in equity prices was followed by an even more dramatic fall, which runs counter to the analysis by Hobijn & Jovanovic. The value of the internet index was halved during March 2000 and was then halved again in the following twelve months. In this period (March 2000 – March 2001) the Nasdaq index fell 59 per cent and the S&P 500 index by a more modest 18 per cent.

A number of studies since 2000 have assumed that what needs to be accounted for is a price bubble. The resultant explanation focuses on the limited possibility of selling short[21] the equity in new IT companies (Ofek & Richardson (2000, 2001), Lamont & Thaler (2001), Duffie, Gârleanu & Pedersen (2002) and Cochrane (2002)).

According to Ofek & Richardson (2000, 2001), investors were certainly active in the market and sold internet equity short to a greater extent than other equity; but because the possibility of selling short was limited, the IT bubble was still able to survive for longer. The introduction of a company is followed by a period (usually six months) during which the original shareholders may not dispose of their holdings. Many new internet companies were introduced in 1998–99 and Ofek & Richardson present data which show that a large proportion of this equity capital was released for sale around the turn of 1999. This may have made an important contribution to the IT bubble's collapse early in 2000. Cochrane (2002) takes the analysis a step further with the argument that IT equity attracted a liquidity premium similar to what a holder of money has in relation to short treasury paper. When liquidity rose dramatically at the beginning of 2000, the liquidity premium and equity prices fell.

[21] Selling short involves borrowing equity and selling it; when the time comes to return the borrowed equity, it has to be bought back, hopefully for less than it was sold for.

It seems clear that the Federal Reserve was highly aware of the risk of an asset price bubble.

It is still too early to draw monetary policy conclusions from the IT bubble; perhaps tentative conclusions will be possible in a couple of years' time, when the repercussions of the burst bubble have subsided. But it does seem clear that the Federal Reserve was highly aware of the risk of an asset price bubble. It is not evident, however, that this had any notable influence on monetary policy before the bubble burst. Still, monetary policy was given a more expansionary direction during 2001 and this was partly motivated by the intention of countering problems with financial stability.[22]

The developments in the United States have highlighted a problem that price stability sometimes entails. Borio & Lowe (2002) point out that high productivity growth, which tends to dampen inflation, can simultaneously fuel an exaggerated optimism and rapidly rising asset prices.[23] They also note that a credible price stability policy which promotes a balanced development of wages and prices may mean that a general increase in demand shows up first in profits and asset prices, with the risk of this developing into a hotbed for price bubbles and financial imbalances.

REAL ESTATE PRICES IN SWEDEN IN THE LATE 1980s

Price bubbles can arise, however, even for non-equity assets.

The survey above refers mainly to stock market bubbles but price bubbles can also arise for other kinds of asset. The development of real estate prices in Sweden in the late 1980s is sometimes cited as an example of a bubble and one, moreover, that may have accentuated the bank crisis in the early 1990s. But was this a bubble? Lind (1998) considers that a bubble developed in the real estate market; Björklund & Söderberg (1999) argue that property prices were partly driven by a speculative bubble. Englund (1998) judges that the fluctuations in house prices can be attributed mainly to fundamental factors, an assessment for which there is support in Hort (1997).[24] The strong house price trend in the 1980s was supported by the combination of high inflation, tax relief, a favourable development of income and, to some extent, the credit market's deregulation. When a tax reform in the early 1990s then coincided with a down-

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[22] This is evident in the first place from the motivations that accompanied the Federal Reserve's interest rate cuts shortly after the terrorist attacks on 11 September 2001; see Monetary policy report submitted to the Congress on February 27, 2002, on http://www.federalreserve.gov/boarddocs/hh/2002/February/ReportSection1.htm.

[23] It seems to be taken for granted that higher potential growth is associated with higher asset prices, particularly for equity, via higher future dividends. This is not self-evident in theory because higher growth also tends to raise the general level of interest rates and that dampens asset prices.

[24] Note that Lind (1998) appears to use a broad definition of a price bubble that includes every form of deviation from fundamental values.

ward shift in inflation, property prices also fell markedly. But there were elements of non-fundamental price formation and Englund (1998) considers that a price bubble probably developed for commercial properties. Although the extent to which the property price fall can be attributed to a collapsing price bubble is not clear, the price fall did exacerbate the Swedish bank crisis in the early 1990s. Other factors were probably more important, for example the rapid growth of credit after the deregulation in 1985 and the expansionary economic policy.[25]

WHAT DOES THE HISTORICAL SURVEY SAY ABOUT WHY PRICE BUBBLES OCCUR?

Monetary policy's role when price bubbles have burst is not clear.

Neither is it all that easy to draw any general conclusions from the above survey, though certain observations can be made. *(i)* Bubbles tend to form if asset prices are unusually strong for some time. *(ii)* Much of the strong trend often stems from fundamental factors and even after a price correction, the level of asset prices may be considerably higher than before their prices took off. The problem seems to be that the favourable economic trend is over-interpreted and this establishes an exaggerated notion of *"a new era"*. *(iii)* The excessive increase in asset prices often appears to be promoted by credit growth and/or an expansionary economic policy. Voth (2000) argues that an unduly expansionary monetary policy fanned a price bubble both in the United States in the 1920s and in Japan and Sweden in the late 1980s. *(iv)* Although the historical record suggests that price stability reduces the risk of asset bubbles and financial instability, this does not guarantee an absence of financial market imbalances. Developments in the US economy in the latter 1990s are conceivably an example of this. But it should also be noted that asset bubbles have occurred mainly in regimes with no explicit objective for price stability. *(v)* Monetary policy's role when price bubbles have burst is not clear. It seems reasonable to suppose that monetary policy tightening contributed to the bursting of the Japanese asset price bubble and the Swedish price bubble for commercial property in the early 1990s. On the other hand, the bursting of the IT bubble appears to have been mainly due to the IT companies' inability to match the expected earnings that lay behind the high equity prices.

[25] For an account of the causes of the Swedish bank crisis, see Englund (1999).

Monetary policy and bubbles

The issue of monetary policy's approach to asset bubbles has generated two points of view: the reactive strategy and the preventive strategy.

The relationship between monetary policy and price bubbles should be considered as an integral part of monetary policy's general approach to asset prices.[26] In the first place there are reasons of principle for including asset prices in the price index the central bank adopts as its target variable (see e.g. Alchian & Klein (1973) and Bryan, Cecchetti & O'Sullivan (2002)); however, such an arrangement is seldom advocated in practice because asset prices are more volatile and thereby harder to control than other prices.[27] Then there is the fact that asset prices can be important indicators of market expectations of future inflation and monetary policy, besides playing a notable role in the transmission mechanism. So there are a number of reasons for a central bank to monitor and analyse asset market developments. As to the more specific issue of monetary policy's approach to asset bubbles, it can be said with some simplification that there are two main points of view: *(a)* the *reactive* strategy and *(b)* the *preventive* strategy.

THE REACTIVE STRATEGY

A reactive strategy means that monetary policy does not attempt to counter the occurrence of a bubble but reacts when the bubble has burst.

Simplifying somewhat, the reactive strategy can be summarised in the principle that in the normal case asset prices shall influence monetary policy only in so far as they affect the outlook for inflation. It is only when a bubble has burst that an additional reaction from interest rate policy may be motivated by concern for financial stability. A reactive strategy means that monetary policy does not attempt to counter the occurrence of a bubble but reacts when the bubble has burst. This has been the dominant view to date in the central bank world. In work from the Riksbank we find that Ekdahl, Eriksson & Marlor (1998) conclude that a central bank shall not use monetary policy measures to burst a bubble preventively. However, in certain cases Heikensten (2001) can — in principle – consider using monetary policy preventively even though the inflation target is not threatened. It should be stressed that even a reactive monetary policy is naturally influenced by the occurrence of a price bubble. The risk of a sizeable asset price correction has often featured prominently in the Inflation Report in the risk assessment that, together with the inflation forecast, guides monetary policy. The usual arguments for a reactive monetary policy are:

[26] For a general discussion of the economic role of asset prices, see e.g. Berg & Galvenius (1994).
[27] The pros and cons of including asset prices when measuring inflation are analysed in Goodhart (2001).

(i) A central bank is not better than the market at determining the stock market's fundamental value, so there is no basis for a monetary policy reaction that aims to correct the market.

(ii) A central bank with price stability as its overriding objective (except in situations where financial stability is clearly threatened) will have difficulty in motivating a departure from a monetary policy traditionally based on forecasting inflation.

(iii) There is considerable uncertainty about the monetary policy reaction that would be needed to prevent a bubble from occurring.

A reactive monetary policy is also advocated by some prominent scholars. On the basis of simulations, Bernanke & Gertler (2001) argue for a relatively strict inflation-targeting policy with no explicit allowance for the size of an exogenous bubble.[28] Using much the same model, Cecchetti, Genberg, Lipsky & Wadhwani (2000) come to a somewhat different conclusion that explicitly allows for the bubble's size. An important reason behind this difference of opinion is that whereas Cecchetti et al. assume a fixed path for the bubble, Bernanke & Gertler let it develop stochastically, which seems more realistic. The fact that in the simulations presented by Cecchetti et al. the central bank knows when the bubble will burst enhances the effectiveness of a preventive monetary policy.

A PREVENTIVE STRATEGY

A preventive strategy means that, in addition to their influence on inflation prospects, asset prices are explicitly taken into account with a view to preventing a price bubble from occurring.

A preventive strategy means that, in addition to their influence on inflation prospects, asset prices (and price bubbles in particular) are explicitly taken into account with a view to preventing or countering the development of a price bubble. The leading advocates of such a strategy in recent years are Cecchetti, Genberg, Lipsky & Wadhwani (2000), who respond as follows to arguments *(i)–(iii)* above:[29]

(i) Fundamental stock market valuations are feasible. Such a valuation is certainly difficult but not necessarily harder than the assessment of other central variables such as potential output. Moreover, a rough guide to the fundamental value can be obtained with established models (e.g. Gordon's model, see footnote 5 on p. 122**)**.

[28] The bubble is allowed for implicitly in so far as it affects the inflation forecast.
[29] A similar argument for a preventive monetary policy strategy is put forward in Borio & Lowe (2001).

(ii) A central bank that focuses entirely on price stability should try to prevent a price bubble from arising even at the expense of poorer goal fulfilment in the short run. The basic notion here is that if a bubble becomes so large that the financial system collapses when the bubble bursts, the functioning of the financial markets changes so much that it may become hard for the central bank to control inflation.[30] It has proved difficult, for example, to counter the Japanese economy's deflationary tendencies in recent years with monetary stimuli. To prevent such a situation from arising there may be a case for tightening monetary policy even though that would result in forecast inflation being below the target for the normal horizon.

(iii) Allowing explicitly for asset prices makes a bubble less probable. The point here is that a tight monetary policy which works against excessive market optimism could counter the development of a price bubble.[31] This seems to be the most critical argument put forward by Cecchetti et al. and they do not really either prove or support it. It is worth noting that the simulations they use in the analysis are based on a path for the bubble that is given exogenously, which means that it cannot be influenced by monetary policy. This may be correct but research does not have much to say about that at present.

Dupor (2002) likewise argues for an explicit allowance for asset prices in the formation of monetary policy. In a micro-based model that includes investment, Dupor shows that welfare gains are to be had by stabilising asset prices in addition to inflation and output. Note, however, that in this model, deviations from fundamental asset values stem from temporary shocks in investment behaviour; this is not what is normally meant by a price bubble, which often builds up over a number of years.

In practice a preventive monetary policy will not necessarily differ from a reactive strategy because they both react to asset price movements.

It should be underscored that in practice a preventive monetary policy will not necessarily differ from a reactive strategy because they both react to asset price movements. What distinguishes them is the preventive strategy's stronger reaction to asset prices in order to stop a bubble from occurring. Good policy communication by the central bank is probably important. An interest-hiking policy that is not motivated by referring to a disturbing development of asset prices might be perceived as confirmation of the economy's capacity to generate profits and thereby be counterproductive. Another strategy could be for the central bank to adhere to a reactive policy while raising its profile in the analysis of asset prices. In

[30] A formal presentation of this argument is given in Kent & Lowe (1997).

[31] Cecchetti et al. clearly state that they do *not* propose that the central bank should either try to burst an existing bubble or aim for a particular level of asset prices.

itself, such an analysis could be a suitable counterweight to excessive optimism about future asset prices and thereby deter the occurrence of price bubbles.

To sum up, in our opinion it is not the difficulties in identifying a bubble that make it less advisable to implement a monetary policy which aims to counter the occurrence of an asset bubble. A number of useful models and indicators are available to elucidate whether a serious bubble is building up. For a central bank with price stability as monetary policy's overriding objective there are good reasons for preventing a price bubble if it can. The problems connected with sharply falling asset prices probably create difficulties for price stability policy in the longer run. The main argument against a monetary policy that to a high degree aims to counter the formation of bubbles is our present inadequate knowledge of the relationship between monetary policy actions and price bubbles.

The main argument against a monetary policy that aims to counter the formation of bubbles is the present inadequate state of the art.

Summary conclusions

There may be a number of reasons for taking asset bubbles into account in the formation of monetary policy. A burst bubble can lead to a situation where financial stability is threatened at the same time as price stability is hard to maintain. Moreover, marked fluctuations in asset prices can lead to undesirable shifts in real economic activity and, not least, to suboptimal investment decisions. In that asset bubbles impair the workings of both the real and the financial economy, there are reasons for trying to prevent them from arising.

In that asset bubbles impair the workings of both the real and the financial economy, there are reasons for trying to prevent them from arising.

In practice it appears to be hard, though not necessarily impossible, for monetary policy to prevent a bubble from occurring. One problem is the difficulty in telling whether a bubble is actually on the way. During its initial phase, however, a bubble needs to generate a substantial excess return if it is to have a chance of surviving; this observation can be used to decide whether it actually is a bubble. Moreover, there are a number of valuation models that can be used to judge the extent to which an asset's current value deviates from the fundamental level and various methods have been developed for identifying bubbles. These methods tend not to tell us much about the economic factors that may underlie a bubble. An assessment of whether a bubble is forming and the consequences this would have should be integrated in a broader analytic frame that also includes other types of macroeconomic imbalances, for example excessive credit growth.

In practice it appears to be hard, though not necessarily impossible, for monetary policy to prevent a bubble from occurring.

A bigger problem is understanding why bubbles arise and whether monetary policy can influence their development.

Understanding why bubbles arise and whether monetary policy can influence their development is presumably more of a problem. The literature to do with so-called rational bubbles shows that for the individual it is often rational to invest in bubble assets even when it is not entirely clear why the bubble arose in the first place. An important factor here is probably certain market imperfections whereby the investor can avoid carrying the entire cost if the bubble bursts. There may be a herd mentality in the market that strengthens the tendency for a bubble to form. There is therefore every reason to draw on the insights which are being generated in the line of research known as *Behavioural Finance*. It is a problem, however, that monetary policy's ability to influence a price bubble still seems to be a rather unexplored field.

In practice the risk of bubbles seems to be greatest when the value of assets has risen unusually strongly for some time.

In practice the risk of bubbles seems to be greatest when the value of assets has risen unusually strongly for some time because this paves the way for an optimistic belief that the historical trend will continue even though fundamentals indicate otherwise. It is not unusual for a part of the favourable increase in value to mirror fundamental factors, such as a strong potential growth rate initially and an expansionary economic policy. An example of this is the development of asset prices in Japan in the 1980s. The Japanese experience illustrates the risks of an unduly expansionary monetary policy and it seems reasonable to conclude, at least with hindsight, that this policy ought to have focused more than it did on countering the development of asset bubbles. On the other hand, experience from the 1929 stock market crash shows that a policy focused on bursting a bubble may be hazardous. A debate is still in progress on whether there really was a stock market bubble in 1929 and whether US monetary policy led unnecessarily to an asset price fall that contributed in turn to the 1930s' depression. But there does seem to be some consensus about US monetary policy being too tight for a time after the 1929 crash. The resolute action of the Federal Reserve after the stock market crash in 1987 is usually cited as an example of what ought to be done. The Federal Reserve also acted resolutely after the so-called IT bubble burst but it is still too early to draw any far-reaching conclusions about this.

It is conceivable that pointing to asset market imbalances and the associated dangers would diminish the risk of a price bubble actually forming.

The diversity of experiences of monetary policy action in connection with stock market crashes is also mirrored in the current debate. There are two main points of view on monetary policy's approach to asset bubbles: *(a)* the *reactive* strategy, which means that monetary policy is normally to be guided by inflation prospects without taking the possibility of a bubble explicitly into account – a departure from this principle is warranted only when a bubble bursts and financial stability is threatened; and *(b)* the *preventive* strategy, which means that in addition to their impact on inflation prospects, asset prices are considered explicitly with a view to preventing

or countering the development of a price bubble. Our tentative conclusion is that the present lack of knowledge about how monetary policy could actually counter a price bubble argues against a monetary policy strategy that is markedly preventive. It is also the case that the Swedish stock market often follows an international trend that Swedish monetary policy is hardly in a position to influence. From this perspective it seems at least as important to follow the Swedish real estate market, which is probably more closely related to Swedish economic policy. Finally, however, it may still be prudent to follow and analyse the development of asset prices more closely and thereby raise the Riksbank's profile in this respect. It is conceivable that pointing to asset market imbalances (including tendencies to bubbles) and the associated dangers would diminish the risk of a price bubble actually forming.

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IMF – development, criticisms and future tasks

By David Farelius
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The activities of the International Monetary Fund (IMF) are a time-honoured matter for debate. In the past decade the focus has been on the Fund's significance for the stability of the international financial system, in particular its influence and impact on the emerging market economies in the light of rapidly expanding capital markets. There has been frequent criticism of the advice and conditions associated with IMF loans, most recently in connection with the crisis in Argentina. Some critics consider that the IMF's sphere of operations should be greatly curtailed; others go so far as to call for the Fund's closure. There are also those who want the IMF to have a broader mandate that includes matters not directly connected with its traditional mandate of macroeconomic and financial stability; in their opinion the Fund has become increasingly important as a bulwark for the international financial system's stability. Yet others have wanted to use the IMF's terms (conditionality) for political purposes.

The author's opinions and conclusions do not necessarily represent official Swedish positions.

How is the IMF reacting to the new environment with greatly increased capital movements? Is the criticism of the IMF justified? What are the main issues at present and what are the future challenges? The purpose of this article is to elucidate these matters. While not much has been altered in the mandate and charter of the IMF since the Fund was established in 1944, the content of the Fund's operations has changed considerably as the world has changed and the Fund has faced new challenges. The forces for change have been mainly external. The Fund has become considerably more transparent and more inclined to listen and learn. The criticism has been called for in a number of cases but should be seen in context. The IMF is a competent institution with a central function in promoting international financial stability and deserves the support of small countries.

Not much has been altered in the mandate and charter of the IMF since the Fund was established in 1944 but the content of the Fund's operations has changed considerably.

First I present lessons from the international financial crises in the past decade. Then I describe the measures that have already been taken and those that are now being discussed under the rubric "reforming the

international financial architecture". I also consider the criticism that has been voiced of the IMF and its functions. A historical look at the factors which have formed the work and role of the Fund in the past fifty years is presented in an annex that also briefly describes the IMF's main operations today. In addition, the annex contains an account of how the institutional structure – the groups that control or influence the IMF – has developed.

New environment with globalised financial markets

The financial crisis in Mexico in 1994–95 came as a shock not only to the financial markets but also to the IMF. Once the negotiations with the IMF had got under way it became clear that Mexico had unprecedented needs. The Mexican financial crisis has come to be seen as the first in the twentieth century in an emerging economy in a world with globalised financial markets. It has been followed by similar crises elsewhere: in Asia, Russia, Brazil and, most recently, Turkey and Argentina. All these cases have involved very large loan packages from the IMF at the same time as the Fund's traditional medicine was clearly not achieving a complete cure. So what distinguishes the new environment from the old?

Private capital flows have grown, capital can now be transferred more rapidly and the relationship between financial crises and macroeconomic fundamentals has become more blurred.

For one thing, private capital flows are now much bigger. Private financing facilities have made large current-account deficits feasible; when the flows of private capital change direction, countries that are dependent on external financing are hit particularly heavily. For another, with decreased transaction costs and the evolution of financial instruments, capital can now be transferred much more rapidly than before, which also means that investors can withdraw from a country at the first signs of a financial crisis. Thirdly, the relationship between financial crises and macroeconomic fundamentals has become more blurred. While observers considered that the Mexican peso's initial devaluation was in line with expectations, the currency's subsequent collapse was totally unforeseen.[1] Moreover, recent international financial crises have tended to occur together with bank crises. This was evident not least during the financial crisis in Asia in 1997–98.

"Reforming the international financial architecture"

The lessons from the crisis have resulted in a consensus on a number of general principles.

During and after the crisis in Asia there was a discussion about the lessons that could be drawn and how efforts could be directed both to prevent similar crises in the future and to manage them better if they do occur.

[1] For a more detailed account, see De Gregorio et al. (1999).

This discussion, under the heading "reforming the international financial architecture", ultimately led to a consensus on the following general principles:[2]

- The IMF should continue to play the same role as before in maintaining the stability of the international monetary system both through surveillance of the system and by providing short-term financing for countries with balance of payments problems.
- The information to the IMF and to markets about economic conditions in member countries must be improved. The IMF must be more transparent in its assessments of and advice to member countries.
- The IMF and other international organisations must focus more on strengthening the financial systems of member countries.
- The IMF and the World Bank must assign greater importance to measures for countering negative social consequences of adjustment in crisis countries.
- Banks and other private creditors ought to provide larger shares of financing in connection with financial crises.

What has happened in these respects? The measures referred to in this discussion are usually divided into two categories: those that promote the prevention of financial crises and those that promote better crisis management.

CRISIS PREVENTION

A number of initiatives have been taken to improve the work of surveillance and make it more effective.

In connection with the Asia crisis in 1997–98 there were many who questioned the quality of the Fund's surveillance. They considered that the IMF had failed to note the risk of the crisis spreading from Thailand to other countries in the region, which it actually did, above all to Indonesia and South Korea. Since then a number of initiatives have been taken to improve the work of surveillance and make it more effective.

The international financial crises have generated more attention to the promotion of standards in various respects.

In general, the international community can be said to have created better chances of preventing financial crises. The international financial crises have generated more attention to the *promotion of standards* in various respects. Work is being done, under the auspices of the IMF, BIS[3], IOSCO[4], IAS[5] and other international organisations, to construct rules and principles for the operations of financial institutions as well as for how governments and central banks are to be transparent about statistics, fis-

[2] See IMF (2000).
[3] Bank for International Settlements.
[4] International Organization for Governmental Securities Commissions.
[5] International Accounting Standard.

cal policy and monetary policy. This work has to do with such concrete matters as accounting, increased transparency and, not least, principles for risk management. It is envisaged that, together with a clearer macroeconomic environment, more uniform rules and more transparency in accounting, capital adequacy and credit assessments will create better conditions for the operations of financial markets and institutions, thereby ultimately reducing the risk of financial crises.

The Asia crisis led to IMF programme requirements for the development of securities markets.

More attention has also been paid to the significance of the fact that the financial system consists not only of financial institutions but also requires efficient securities markets that provide alternative channels for corporate financing in cases where the institutions function less well. Moreover, that will reduce the real economic effects of bank crises. In the Asia crisis these conclusions led to IMF programme requirements for the development of securities markets because that makes the economy more robust.

A sound banking system is needed as well as efficient oversight of the financial sector.

The general conduct of a country's economic policy must be such that it does not disturb the confidence of domestic and foreign investors. It is also important to have a sound banking system and efficient oversight of the financial sector. Its assessments of how individual countries comply with these standards have provided the Fund, member countries and financial investors with a better picture of potential weaknesses. Together with the World Bank, moreover, the Fund has developed methods for assessing a country's financial sector.[6] Another main theme, not least in the light of developments in Argentina, has been the sustainability of country debt. The aim has been to enhance the IMF's ability to detect signs of a crisis and identify risks at an early stage.

Perhaps the biggest change in crisis prevention has occurred in the area of transparency and openness.

Perhaps the biggest change in crisis prevention has occurred in the area of *transparency and openness*. Greater transparency is also one of Sweden's profile issues in the IMF. The Fund used to be a comparatively closed organisation, which contributed to the criticism of it. Today, however, much information is available and to a growing extent member countries are permitting the publication of documents connected with surveillance; more than 60 per cent of such documents are now published with the consent of the countries concerned. The IMF presented 1,400 documents on its website in 2002, which was twice the number the year before.[7]

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6 Financial Sector Assessment Program (FSAP), 1999.
7 See IMF (2003b).

The importance of increased transparency has been demonstrated in a number of studies. A recent IMF working paper[8] found, for instance, that relatively high transparency makes investors more inclined to continue their exposure when the country experiences a financial crisis. Investors with little or no information can often be said to fear the worst. More and more emerging market economies are also beginning to appreciate the importance of better insight. An example is Uruguay, which published its latest programme document. But notwithstanding the empirical evidence, during the past year the number of publications has risen more slowly. Certain countries, particularly in the developing world, have been very sceptical about increased transparency, above all in respect of their own economic policy. The introduction of tougher demands for the publication of IMF documents is now being discussed. The Fund is an association of sovereign states and all publication is currently voluntary. One idea is to make publication presumptive, in which case countries that choose not to publish IMF reports would be under more pressure to explain why. A final resort would be to make publication of IMF reports compulsory; considering the attitude of the debtor countries, it is reasonable to suppose that such a decision lies in the future. But I do believe there is a chance of publication becoming presumptive. In the meantime I find it important to go on taking every opportunity of converting the sceptical to openness. That will ultimately enhance the stability of the international financial system and thereby improve the work of crisis prevention.

The introduction of tougher demands for the publication of IMF documents is now being discussed.

CRISIS MANAGEMENT

The measures for improving crisis management have been more controversial in the international debate than those for crisis prevention. While the discussions of this topic have led to a better understanding of how the management of financial crises could be improved, less progress has been made in practice. This is partly a consequence of a sceptical attitude, mainly on the part of the United States, to interfering too much with market mechanisms and partly because the countries hit by crises have opposed many measures for fear of them adding to their borrowing costs.

The measures for improving crisis management have been more controversial in the international debate than those for crisis prevention.

Under normal circumstances, most member countries have no need of financing from the IMF because they are able to borrow via the international capital markets. In a crisis, on the other hand, the latter sources soon dry up, leading to a larger borrowing requirement from the Fund. In general terms, a country in a financial crisis that denies it access to the international capital markets has three ways of covering a financing

Much of the debate on crisis management has been about how to induce the private sector to participate more in the financing of international financial crises.

[8] See Gelos et al. (2002).

requirement. One is a tighter economic policy that reduces the borrowing requirement, another is to borrow from international organisations such as the IMF and the third is for the private sector to assist in financing the management of the crisis by continuing its exposures to the country instead of withdrawing. Much of the debate on crisis management has been about how to induce the private sector to participate to a greater extent in the financing of international financial crises. This is not a new debate; it also surfaced in connection with the debt crisis in the 1980s. But in those days it was about getting a comparatively small number of private banks to extend their loans to countries in a crisis. Today, when emerging market economies have more access to international capital markets and private holders of bonds issued by those countries are much more numerous, the situation is far more complex.

Proposals to set up an international bankruptcy mechanism were discussed in connection with the crises in Mexico and Asia.

Proposals to set up an *international bankruptcy mechanism* were discussed in connection with the crises in Mexico and Asia. The idea was that countries in an acute financial crisis would then be in a better position to resolve the crisis in an orderly manner. But as the Mexican economy recovered relatively quickly and the situation in Asia had already improved in 1998, such ideas did not catch on. The discussion was renewed when Argentina was forced to suspend payments to its creditors in 2001. That autumn Anne Krueger, first deputy managing director of the IMF, presented a proposal for an international bankruptcy arrangement known as the Sovereign Debt Restructuring Mechanism (SDRM).[9] The idea is to create a framework whereby countries that have got into a crisis with an unmanageable debt will be able to renegotiate the debt in an orderly manner. The proposal draws inspiration from American bankruptcy law, which places a temporary stay on creditors taking legal action against a company that has been declared insolvent and obtained a law court's approval. The proposal envisages that a decision by a majority of creditors would bind the minority and thereby favour a more orderly management of debt.

Representatives of the private sector and the emerging market economies are critical of SDRM.

Various versions of SDRM have been discussed by the IMF during the last two years and the outlines of a concrete proposal are now in place. However, this proposal lacks the support from 85 per cent of the member countries that is required to amend the IMF's articles of agreement and thereby launch the mechanism. Private sector representatives are highly critical of SDRM, mainly because they reject the case for the international community's intervention in a restructuring of debt. Another reason is probably that the existing system is more advantageous for the private sector in that it entails implicit subsidies from the public community.

[9] For a fuller description of this and other proposals for better crisis management, see Melander (2002).

Neither are representatives of the emerging market economies, for which the proposal is primarily intended, convinced of the need for SDRM. Their scepticism has mainly stemmed from a fear of increased borrowing costs.

Collective action clauses in bond contracts are another way of promoting an orderly resolution of crises.

An important observation is that just the discussion of SDRM has promoted other ways of resolving crises in an orderly manner. A proposal to introduce collective action clauses in bond contracts, for instance to make it possible for the terms to be changed by a qualified majority, has been accepted more widely in the past year.[10] Such clauses where already being discussed after the Mexican crisis in 1995 but at that time the United States, emerging market economies and private sector representatives were not in favour. The fact that the IMF has considered introducing SDRM has meant that the previous opponents of collective action clauses are now more inclined to agree to their introduction. Today, such clauses in bond contracts are as self-evident to many as the importance of greater transparency.

The potential scale of capital movements means that financing requirements are tending to become enormous.

A central aspect of crisis management naturally has to do with *how much individual countries can borrow from the IMF*. In recent years the financing requirement in certain crisis countries has been well above the normal rules for access to the Fund's resources. Since the Mexican crisis in 1995, the IMF's normal lending limits[11] have been exceeded on twelve occasions. In 1997, for instance, South Korea had access, within the framework of its IMF programme, to the equivalent of about 1,900 per cent of its share of the Fund's capital. The corresponding figure for Brazil in 2002 was 750 per cent. Lending by the Fund to Turkey has been stepped up so that in 2001 it amounted to about USD 31 billion or approximately 2,800 per cent of this country's capital share.[12] The tendency naturally reflects the increased exposure to international capital markets and the larger financing requirement this entails when countries encounter problems. The potential scale of capital movements means that financing requirements are tending to become enormous. Another legitimate question is whether the country shares of the Fund's capital are sufficiently adapted to cope with the challenges in today's globalised economy. Representatives of the emerging market economies have argued that it is just their capital contributions, or quotas, in the IMF which need to be increased so that more financing from the IMF would be available in the event of a crisis. This point of view has not gained a hearing among other member countries.[13]

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[10] Mexico introduced such clauses in its latest bond issue and the same has been done by other countries, e.g Egypt, Lebanon and South Korea.

[11] The lending limit is 300 per cent of the quota or capital contribution (100 per cent a year for three years).

[12] See IMF (2002).

[13] For a further discussion of IMF quotas, see Nedersjö (2001).

The past decade's international financial crises and the loan packages provided by the IMF have enhanced the Fund's political importance.

The past decade's international financial crises and the loan packages provided by the IMF have enhanced the Fund's political importance. Although the Fund does not have a political mandate – lending decisions are to be based on economic considerations – the Fund is sometimes used at arm's length by the largest countries, particularly the United States. As it is the size of their economies that determines the influence of the member countries, throughout the history of the Fund the United States has wielded most influence and also been in a position to block certain crucial decisions. Executive board decisions usually represent a consensus, reached without taking a vote. But it is also the case that in practice, the decisions that are most sensitive politically have come to be reached off the board by the largest "stakeholders". Above all, matters to do with large loan packages in a crisis have been settled as a rule in advance by G7. Thus, the outcome has often been decided before these programmes reached the board. There have also been occasions when the head of the IMF, after consulting G7 but before the board formally approved the loan, issued a press notice in which he recommended a positive outcome. That naturally made it difficult for the board to decide otherwise without risking market reactions against the crisis countries in question, since an IMF package had already been discounted.

The board recently adopted new guidelines for deciding loans that exceed normal limits.

New guidelines for deciding loans that exceed normal limits were recently adopted by the executive board. The guidelines are intended to ensure that in such cases the board is formally informed more continuously. As a small country, Sweden has every reason to support a rule-based system so that these rules are adhered to. Otherwise there is a risk of the IMF being used even more by the major G7 countries as an extension of their foreign policy. As the Fund's financing capability is not infinite, it is also important that the board follows the normal lending rules and limits to a greater extent. Another central matter is to get the private sector to provide more financial assistance in crisis management so as to ease the burden of financing by member countries. As indicated earlier, there is a risk that increasingly large loan packages will give investors the wrong incentives (moral hazard) by implying that investing in emerging markets is relatively free from risk because the IMF "in the last resort will provide financing in the event of a crisis".

An international insolvency procedure would restrict lending from the international community to countries in an insolvency crisis.

If the rules for lending limits were to be followed more consistently by the IMF's board, countries in a debt crisis would be more likely to have a greater incentive to enter into negotiations with their private creditors at an early stage. An international insolvency procedure would facilitate this. Such a system would restrict lending by the international community to

countries in an insolvency crisis[14] that is likely to take a long time to resolve. Debtor countries as well as private creditors would then probably have a stronger incentive to negotiate a sustainable solution. Debtor countries would benefit because they would probably not lose access to the international capital markets, at least not in the somewhat longer run (provided they seem likely to take measures to overcome the crisis), and the creditors would more probably get their money. In a situation where the negotiations fail to produce a solution, SDRM could be activated as a last resort. Although there is clearly not enough support at present for setting up such a mechanism, I find it important that the question of improving crisis management continues to be discussed, particularly in the light of Argentina's renegotiation of the loans it has defaulted on.

Criticism of the IMF

Criticism of the IMF roughly falls into five categories.

The role of the IMF has been the subject of a lively debate, not least in connection with the management of financial crises in recent years. The criticism roughly falls into five categories.[15] First there is the charge that the IMF has pumped too much money in the form of massive support programmes into middle-income countries and thereby distorted the market's normal credit assessment by protecting private creditors from losses (moral hazard). Secondly it has been argued that the demands on individual countries (conditionality) have been faulty and unduly severe, leading to negative economic, social and political effects. Thirdly, the Fund is accused of irresponsibly forcing countries to open their economies to capital flows that are volatile and destabilising. Fourthly, the Fund has been criticised for its policy on the poorest countries' debt, with demands for increased debt relief. The fifth line of criticism concerns the Fund's governance.

THE PROBLEM OF MORAL HAZARD

In practice, the role of the IMF in the management of crises in emerging market economies has amounted to guaranteeing short-term loans in particular and thereby shielding the countries in question from the difficulty of renegotiating the loans and perhaps ultimately from having to suspend payments, with potentially serious consequences for economic development and living conditions in those countries. It may be asked whether this is sustainable in the longer run, even though it was difficult to see any

[14] For a discussion of the difference between solvency and liquidity crises, see Melander (2002).
[15] See Rogoff (2003).

The IMF's crisis management has enabled emerging market economies to borrow more cheaply than would otherwise have been the case; international creditors have not needed to charge higher interest rates to cover their risks.

acceptable alternative when the crisis was raging. One effect in practice has been that loans for emerging market economies have been cheaper than would otherwise have been the case. International banks and other creditors have not needed to charge as much compensation for their risks – in the form of higher interest rates – as they would have if they had had to count on carrying the full loss in the event of a crisis. This means that the support packages have tended to exacerbate the problems with growing flows of volatile capital. Neither has the equivalent support been available in practice for more long-term direct investments, which presumably would be at least as valuable for the emerging market economies in that such investments are primarily dependent on the long-term development of the domestic economy.

Note that the moral-hazard problem has no obvious solution.

Note that there is no obvious solution to problems of this kind. A line that has been adopted in some cases is for private players, encouraged by their governments, to make voluntary agreements to prolong their loans. A difficulty here is that discussions with private creditors have to be initiated by the crisis country and the countries concerned have often been disinclined to resort to measures that might jeopardise their future access to the international capital markets. Together with stricter rules for lending, the proposed SDRM would probably facilitate the management of debt crises both by making the management of acute financial crises more predictable and by avoiding such a long delay before the countries call for a reconstruction that the situation becomes chaotic.

IMF'S CONDITIONS

The Fund has been criticised for making its loans dependent on an excessively tight economic policy.

Another type of criticism has concerned the conditionality of the various loan packages. The Fund has been criticised for making its loans dependent on an excessively tight economic policy. This criticism was voiced not least in connection with the Asia crisis, when it was considered that the IMF's economic policy prescriptions were faulty and unduly strict, so that they exacerbated instead of improving the conditions for a recovery. Shouldn't interest rates be lower, both to avoid knocking out firms with domestic debt as well as the banking system and to keep the wheels turning by stimulating demand more strongly? Or were, on the contrary, high interest rates needed to avoid a flight of essential capital, a currency depreciation and the collapse of firms with foreign currency liabilities? Or could it be the case that the high interest rates would cause investors to withdraw because they saw a future with continued failures and social unrest?

It should be borne in mind that countries in a crisis go through a series of phases. In the initial phase, there are no potential lenders as a rule apart from the IMF; the alternative is self-financing, that is, a severe domestic tightening to turn a borrowing requirement into a surplus that suffices to service foreign debt. Later, when confidence in economic policy has been strengthened, there are more options and it becomes meaningful to discuss additional borrowing as an alternative to further domestic restrictions. In an acute liquidity crisis, however, this choice is not available.

Countries in a crisis go through a series of phases.

Another point to bear in mind is that countries do not apply for IMF loans when the going is good. They tend to turn to the Fund only when the situation has become untenable and their financial crisis is acute. This means that vigorous measures are then usually needed to restore investor confidence and thereby secure access to the international capital markets. The IMF financing absolves the countries from tightening their belts as much as would have been necessary without this support. We still do not really know to what extent the IMF's medicine during the Asian crisis was appropriate and with hindsight it is always easy to criticise tricky decisions that were made at the height of a crisis. Neither can we tell what a different policy would have led to. But we do know that after some time, the restrictive nature of a number of the programmes was eased, partly as the acute phase of the crisis receded and the shortage of foreign currency became less troublesome.

Countries tend to turn to the Fund only when the situation has become untenable and their financial crisis is acute.

Another issue is the *structural changes and reforms* that some of the programmes required and which have also been criticised in connection with IMF programmes for the poorest countries. There may be a case for such requirements with respect to, for instance, the bank sector, the development of securities markets and corporate bankruptcy procedures, where the shortcomings are often clearly integrated with the other problems. And of course they may be motivated in countries that are aiming to open their economies and develop market mechanisms. The requirements are more questionable when they concern aspects of the economy that are not clearly involved in the current stabilisation problem. For example, it was not self-evident that South Korea should immediately implement a tax reform and privatise state enterprises.[16] These were natural measures in the longer run but were they necessary immediately in the programme? The large number of structural conditions in programmes for the Asia crisis can also be criticised; such conditions are liable to discredit the Fund, besides generating needless opposition to the IMF's proposed policy in the countries concerned.

Another issue is the Fund's call for structural changes and reforms, which has also been criticised in connection with programmes for the poorest countries.

[16] See e.g. Goldstein (2000).

A topical instance of heavy criticism of the Fund is the management of the ongoing crisis in *Argentina.*[17] The IMF has supported the Argentine economy for a number of years and even provided additional funds as recently as in August 2001, when many considered that the situation with a fixed exchange rate had become untenable. Following the collapse of the currency board in January 2002 and Argentina's suspension of payments to its creditors, the negotiations on a revised economic programme hung fire throughout 2002. It has been argued that the Fund should have acted earlier with demands for measures to make the currency board arrangement more sustainable, or even forced Argentina to alter its exchange rate policy before it was too late. Other critics place a part of the blame for the crisis on the Fund on the grounds that, as a supporter of the fixed exchange rate policy, the Fund ought not to have "abandoned" the country when it landed in a deep crisis of confidence after the suspension of payments and the shift from the fixed exchange rate.

Bear in mind that the IMF is not mandated to require that a country alters its exchange rate arrangement.

Here it should be borne in mind that the IMF is not mandated to require that a country alter its exchange rate arrangement. While the Fund is in a position to propose a variety of measures in its negotiations with borrower countries, the choice of exchange rate is in many respects a political issue, so calling for a shift from a fixed to a flexible regime is considered to be an excessive interference with the country's internal matters. In the case of Argentina there is the problem of the country's traditional tendency to live above its means. A lack of political leadership has also been an inhibitory factor. There is no denying that clearer signals from the Fund – for example, a refusal to grant the additional loans in August 2001 until more vigorous steps had been taken to restore confidence – could have resulted in an earlier shift in exchange rate policy and possibly led to a smoother changeover. In this respect, however, a particular responsibility rests on the big players in the IMF, led by the United States. It is also a fact that during 2002 staff from the Fund made over 30 trips from Washington to Buenos Aires, which finally resulted in approval of an interim programme in January 2003. I find it unreasonable to accuse the Fund of not giving priority to a resolution of the crisis in Argentina. It has mainly been a matter of Argentina's inability to anchor the necessary reforms politically, rather than the IMF's conditions being too far-reaching.

[17] For a detailed account of the IMF's role in Argentina, see Mussa (2002b).

CAPITAL LIBERALISATION

The rapid expansion of international capital markets should have resulted in a more efficient use of capital in individual countries as well as globally.

For emerging market economies, the rapid expansion of international capital markets has provided increased access to loans when there is an acute need to mitigate the effects of other shocks, whether these come from crop failures or from falling prices for major export products. Investment in these countries has also grown dramatically, leading to increased output and prosperity. At the same time, the industrialised countries have been able to diversify risks to a greater extent and benefit from the higher return that investment in emerging market economies, for example, may yield. This should have resulted in a more efficient use of capital in individual countries as well as globally.

The basic infrastructure in terms of surveillance and banking systems needs to be in place before launching a more far-reaching liberalisation of capital flows.

Still, there have been problems. The consequences of capital liberalisation in recent decades – in particular countries as well as on the global capital markets – were undoubtedly underestimated when the process began. Just as there is a rush to invest when economic prospects are favourable, so does disinvestment tend to be rapid when the financers suspect that mounting problems threaten the funds entrusted to them. The international discussion has now changed tack. Much has been written about how deregulations have been undertaken in countries like Sweden as well as in the developing world. Liberalisation was sometimes implemented too quickly, without proper consideration of the consequences. This is now being heeded in advice to countries that have not yet opened their markets. The temporary restrictions on capital inflows that Chile applied in the late 1990s are judged to have worked satisfactorily. The earlier criticism of the restrictions the Malaysian authorities imposed on capital outflows in connection with the Asia crisis has been modified. A central lesson is that the basic infrastructure in terms of surveillance and banking systems needs to be in place before launching a more far-reaching liberalisation of capital flows.

POOR-COUNTRY DEBT

In that SAF/ESAF (now PRGF) is financed with loans and contributions from individual member countries, interest can be virtually waived and combined with longer maturities.

The work of the IMF for the poorest countries came to the fore in the mid 1980s. Ever since they had achieved independence in the 1960s, the former colonies had had no alternative to borrowing at market rates. Concessional lending by the Fund began in 1986 with the creation of the Enhanced Structural Adjustment Facility, SAF/ESAF (today called PRGF). Instead of being financed in the ordinary way from the member countries' capital contributions, this facility is funded with loans and contributions from individual countries. This paves the way for charging virtually no interest on loans and having longer maturities. The introduction of this bor-

rowing facility caused some controversy because a number of member countries feared that an increased involvement in concessional lending would be liable to turn the Fund into more of a development institution, which would encroach on the territory of the World Bank.

Lending to the poorest member countries is small compared with the normal non-concessional loans.

The operations of the IMF in the poorest countries have aroused controversy at times, not least in the recent debate on effects of globalisation. In some circles the Fund is equated with Third World structural adjustment programmes. But although lending to the poorest member countries, measured as the number of programmes, represents a central component of the Fund's activities, its volume is small compared with the normal non-concessional loans.

A stronger focus on promoting growth and combating poverty in the poorest member countries was approved by the IMF in 1999.

Critics have also argued that the international community does not do enough to overcome the problem of poor-country debt. The discussions since the 1980s about the growing problem of the poorest countries' debts became more focused in 1996 with the adoption of a new debt-relief mechanism known as the Highly Indebted Poor Countries initiative (the HIPC initiative). Unlike earlier arrangements, this initiative assembled all the creditors of a country – bilateral as well as multilateral – to work together for debt relief. Pressure from various interests led to a broadening of the initiative in 1999. In that year the Fund also adopted a stronger focus on matters to do with promoting growth and reducing poverty in the poorest countries.

To date, 26 countries have been promised debt relief equivalent to more than USD 25 billion.

To date, 26 countries have been promised debt relief equivalent to more than USD 25 billion.[18] The costs for the debt relief to the 34 countries included in the enhanced initiative are estimated to total USD 41 billion.[19] It is intended that the funds which debt relief makes available in the countries in question will be used to step up efforts for reducing poverty. A positive development is discernible. For example, the average level of debt payments by the countries in question has declined from 17.5 per cent of their exports in 1998 to 10 per cent in 2002, while their average social expenditures have risen from just over 6 per cent of GDP in 1999 to more than 9 per cent in 2002.[20] But a good deal remains to be done before every creditor contributes to these countries' debt relief; experience has shown that private creditors are not always prepared to participate in the initiative.

A review is in progress of the IMF's role in poor countries.

Another topical issue is the role of the IMF in the poorest countries, particularly those that have obtained debt relief and can thus be said to have "graduated" from the initiative. On the one hand, it is important that these countries do not enlarge their debt burden again with loans

[18] At current values.
[19] In nominal terms.
[20] See IMF (2003a).

from international organisations; on the other, an IMF programme is usually a precondition for obtaining budget support from individual donor countries. These two considerations have to be reconciled. One solution might be for the poor countries to have programmes with little or no direct financing but with the possibility of drawing on the Fund's resources up to a specified level should the need arise.[21] That would not add to their debt but still make them eligible for IMF programmes that open the door to development assistance. These problems are also being considered in the ongoing review of the IMF's role in poor countries. Hopefully, the work of the Fund in these countries can be made more effective.

A total write-off of the poorest countries' debts would absorb the whole of the IMF resources for soft loans.

So why not write-off all of the poorest countries' debts? While the sums involved may seem relatively small for the global community, that is not the case compared with the resources that are actually available today. A total write-off would absorb all the funds at the disposal of the IMF for soft loans, with similar consequences for other institutions in this field. There would then be no resources for future concessional loans from the IMF to other poor countries. Would that be a reasonable policy? Is it just those countries that have incurred the largest debts that deserve most support? In other words, given a certain amount of resources for combating poverty, would one assign them to the most indebted countries? Not necessarily. Then there is the problem of what the IMF would be signalling to borrower countries in general if the criterion for obtaining support were to be a history of building up large debts.

Here, too, it is thus a matter of a difficult balancing act. Writing off debt needs to be feasible because debt can be a major obstacle to development. But it also needs to be done in ways that support the country's general economic development and also reduce poverty. Moreover, taxpayers in the donor countries need to appreciate the reasons behind the support, which considering the nature of some indebted countries' regimes is not always easy.

Poverty reduction now has a more explicit role and the forms for consultation have been notably reinforced.

We can see that the debate in this field in recent years has led to changes. Reducing poverty now has a more explicit role and there are substantially wider forms for consultation – not least the broad dialogue that was initiated between representatives of poor borrower countries in connection with specific poverty reduction strategies. The debate has also highlighted the importance of building up institutions. For the future, the IMF needs to define its role in poor countries more clearly and achieve better cooperation with other players, above all the World Bank.

[21] Certain loan facilities for regular lending (at "market rates", see note 40 on p. 169) can also be used for precautionary purposes: the country obtains a programme where it refrains in advance from using the loans in question but is entitled to draw on the resources should a need arise during the programme's lifetime.

There have been demands for increased influence and representation for emerging market economies in the IMF.

The issue of IMF governance has also been discussed. The growing importance of the emerging market economies has fuelled criticism of the composition of the executive board, with demands for increased influence and representation for emerging market economies.[22] The board consists of 24 members, of whom 10 represent emerging-market and middle-income countries. A change in representation could be achieved in the longer run by amending the relatively complex formulas for calculating the size of a country's contribution to the Fund, since this determines the number of votes a country has. That would require a successive increase in the Fund's capital, which would take time because the financial base is reviewed only once every five years.[23] A more drastic alternative would be to give the emerging market economies more influence by making a political decision to alter the composition of the constituencies.[24] The charter of the IMF[25] stipulates that the executive board is to consist of 20 members but additions – most recently when the former Soviet republics joined – have currently raised the number to 24. Decisions to increase or reduce the number of board members require an 85 per cent majority, so with over 17 per cent of the total number of votes the United States is a key player. The board has to be re-elected every second year and in theory the United States could then withdraw its support for the increase to 24, in which case four seats would have to be incorporated in other constituencies. Then there is the question of what an increased representation for emerging market economies would entail for other countries.

At a later stage the European representation will probably be consolidated.

Representation on the executive board is a consequence of the Fund being financed by the industrialised countries; the creditors have a legitimate interest in being in a majority in the organisation. It has been argued, above all by representatives of emerging market economies with backing from the United States, that Europe is over-represented on the board, making it natural to consolidate the European representation.[26] Moreover, the EU countries have stepped up their coordination of IMF issues and as this coordination grows, so may demands that the EU countries get together with their own director on the board. In my opinion, the number of seats on the board will not change appreciably in the short run. Later on, the European representation in the IMF will probably be-

[22] An account of the institutional framework is presented in an annex to this article.
[23] For a fuller description of IMF quotas, see Nedersjö (2001).
[24] A third alternative might be to increase the countries' basic votes, which have been constant since the inception of the Fund.
[25] Article XII, section 3(b).
[26] Of the 24 directors, 9 represent European countries.

come more consolidated, which would naturally affect Sweden's and the Nordic-Baltic representation.[27, 28]

The discussion of governance has also concerned the influence of the poor countries in the IMF. It has been argued, for example, that the African countries, which make up two constituencies, need more resources and more representation in order to increase their influence in the Fund (and the World Bank). So far the IMF has decided to give these constituencies additional resources in the form of more staff in Washington. I do not foresee more radical changes in favour of the African countries in this respect. In the event of a future change in the structure of the IMF constituencies, it is more probable that the representation of emerging market economies would be increased.

SUMMARY

The IMF can be said to have made mistakes. In certain cases the Fund has provided loans for too long to countries with a fixed exchange rate that then proved to be unsustainable. At the same time, the answers are seldom so self-evident, even in retrospect, as is claimed. Macroeconomic policy in a crisis is almost invariably a matter of difficult choices. It is also the case that in recent years the Fund has listened to the criticism, often well-founded, of its operations. This change has been driven by the stakeholders, in most cases at the behest of non-governmental organisations. Pressure from outside groups has not infrequently been decisive in initiating changes.

In recent years the IMF has listened to the criticism, often well-founded, of its operations.

The IMF is currently discussing a streamlining of programme conditions and attempts are being made to cut back the conditions for structural efforts in these programmes. Another important lesson from IMF programmes from the 1990s is the central importance of the countries perceiving that they own – and can identify themselves with – the policies the Fund prescribes. The more the economic reforms are anchored in the domestic political system, the greater is the chance of programmes succeeding. On a number of occasions in recent years the IMF's managing director has underscored the importance of continuing to build up a Fund culture of listening and learning. The criticism of the IMF has also led its

The more an economic reform is anchored in the domestic political system, the greater is the chance of the programme succeeding.

[27] Sweden belongs to the constituency that also includes the other Nordic countries and three Baltic countries, with which Sweden thus shares a seat on the board. With the adherence of the Baltic countries, six of the eight countries in the constituency will be members of the EU.

[28] More radical proposals for changing the institutional structure have been described earlier, above all with the aim of enhancing political legitimacy. One of the more radical suggestions, for example at the Monterey conference on development financing in 2003, is to set up an economic security council and thereby give the United Nations a stronger standing in economic policy. Such a development would be unfortunate, however, and would not benefit small countries, which have an interest in a rule-based system. Given the recent political differences about managing the crisis in Iraq and the United States' more sceptical attitude to the UN, it is reasonable to suppose that such a decision will not materialise.

stakeholders to step up their demands for an independent examination of the Fund's operations. In the late 1990s there were a number of ad hoc evaluations of various areas and this led in spring 2001 to the creation of a body, the Independent Evaluation Office (IEO), that is independent of the Fund's executive board. During 2003 the IEO is examining the Fund's management of the crisis in Argentina, for example.

Changes in IMF governance are controversial.

Changes in IMF governance are perhaps more controversial. Changes may be warranted in the longer run as the emerging market economies play a growing part in the international financial system. But this raises the question of at whose expense such changes are to be made. That is ultimately a political decision.

A narrower or a wider mandate?

In the short term there are unlikely to be any changes in the Fund's mandate for capital liberalisation.

The IMF's mandate is to ensure that countries remove restrictions on cross-border current payments. In practice, the Fund's discourse with programme countries also includes matters to do with the liberalisation of capital. In the early days of the Asia crisis an IMF discussion was in progress on amending the charter and including capital liberalisation as an explicit objective. The change would not have made much difference to the Fund's procedures in practice. With the ongoing financial crisis, however, the discussion died out and today, as mentioned earlier, there is more sympathy for temporary restrictions on short-term capital movements, although the lasting effects of currency controls appear to be uncertain. In the short term there are unlikely to be any changes in the Fund's mandate for capital liberalisation.

In 1999 there was a desire from the United States to restrict the role of the Fund in the poorest countries.

The increased lending by the Fund in the wake of the Asia crisis coincided with a regular review of the IMF's financial base. The executive board agreed that additional contributions were called for. The charter stipulates that a decision to this effect requires an 85 per cent majority and as the United States, with over 17 per cent of the total vote, can block it, the position of the host country is crucial. The US Congress ultimately approved an increase in the country's quota on condition that a commission was appointed to review the functions of the IMF and other international financial institutions. Late in 1999 this commission, under the Republican Alan Meltzer, found that the functions of the IMF ought to be greatly reduced and that the operations in the poorest member countries should cease.[29] Meanwhile, the US finance minister, Lawrence Summers, gave his opinion of the IMF's future role; while this did not call for such drastic cuts in the Fund's tasks as the Meltzer commission called

[29] See IFIAC (2000).

for, it still involved limiting the role in the poorest countries. Although Summers' statement should be seen in the light of the US domestic policy debate, it did differ from the joint G7 position some months earlier: the annual meeting of the IMF and the World Bank in autumn 1999 had resulted in a clear mandate for the Fund to integrate poverty reduction and growth promotion more resolutely in the work with the poorest member countries.

Summers' play spurred a debate about the future role of the IMF. Those who have advocated a radical cut in the Fund's mandate have not managed to convince others. The problem here is that discontinuing the Fund's lending to certain categories, such as the poor developing countries, cannot be motivated as long as the Fund continues its surveillance of those countries' macroeconomic development. Some other institution, probably the World Bank, would have to shoulder the Fund's role in Africa and would then need to make macroeconomic assessments as a basis for its loans. In my opinion, the IMF's complete withdrawal from the poorest developing countries would not represent an efficient division of labour between the institutions. Neither does it seem reasonable for one institution to restrict its macroeconomic forecasting to the developing countries while another institution produces forecasts for all the other member countries. But I do find it important that the Fund concentrates on what it is good at: the core field of macroeconomic and financial stability. In time the Fund's dealings with the poorest countries should not be financial but focus instead on technical assistance and surveillance. Better cooperation with the World Bank and a clearer division of responsibilities between the two institutions are also desirable.

Those who have advocated a radical cut in the IMF's mandate have not been convincing.

Others have argued on the contrary that the IMF's mandate should be extended. Proposals to this end have envisaged that the Fund's surveillance should start to include issues not directly connected with its traditional operations. Examples are money laundering and ILO standards for the work of trade unions. The events of 11 September 2001 naturally led the Fund to step up work on combating the financing of terrorists and money laundering; these are matters that are liable to erode confidence in the international financial system and can be said to be at least partly within the Fund's mandate. Evaluations of how countries live up to a standard in this area are undertaken jointly with the World Bank and the OECD's Financial Actions Task Force (FATF). On the other hand, there has been no consensus to date on broadening surveillance and taking the ILO's area into account. This is a matter both of respecting the mandates of different institutions and of whether the Fund actually has the necessary competence. Neither is there a clear-cut link to the Fund's core concern: macroeconomic and financial stability.

Others have argued on the contrary that the IMF's mandate should be extended.

The IEO's evaluation showed that the Fund has tended to be over-optimistic in its surveillance, making it reasonable to render this more independent of the lending operations.

The IMF has been criticised for its surveillance work and a failure in certain cases to point clearly to potential risks, above all in emerging market economies. The example of Thailand in 1997 has already been mentioned. Another instance is Argentina and the argument that more independent surveillance could have led to the IMF and Argentina being obliged to deal with the unsustainable exchange rate policy at an earlier stage.[30] The IEO's evaluation of countries that have been prolonged users of IMF programmes revealed a tendency for staff to be over-optimistic in their surveillance of programme countries.[31] In that case it would be reasonable to make surveillance more independent of lending operations. There may be grounds for this criticism – for example, the Fund's assumptions for economic growth in Argentina at the beginning of the 2000s were unduly optimistic – but greater independence can be achieved with relatively small changes. A separate department could undertake surveillance independently and screened off from lending operations. This is actually being discussed at present under the rubric "a fresh pair of eyes". Unduly large changes would risk the IMF developing into more of a rating institution, which would not be in its interests.

Neither a marked narrowing nor a major enlargement of the IMF's mandate is likely in the near future.

Thus, neither a marked narrowing nor a major enlargement of the IMF's mandate is likely in the near future. As in the past, the work of the Fund is more likely to be adapted successively to a changing world. The Fund is still considered to have an important role in guaranteeing the stability of the international financial system. The largest stakeholder, the United States, naturally has a crucial part in the Fund's development. In this respect a change can be noted in the American position on IMF crisis management, not least on the extent of access to the Fund's resources. The Clinton Administration was very actively involved in the management of the Asia crisis.[32] IMF financing was supplemented with financing from other institutions and bilateral loans. When Bush took over, this policy was changed, at least in the rhetoric, which expressly indicated that the era of "large packages" was over. This paved the way for the presentation of Krueger's SDRM proposal in autumn 2001, with its ultimate aim of contributing to decreased lending by the Fund or at least an alternative to unsustainably large loan packages. Meanwhile, by approving Turkey's IMF programme, the Bush Administration agreed to the IMF's largest loan ever (in relation to the recipient's quota). This somewhat mixed position has led to a certain amount of confusion, not least among private sector representatives. It can also be noted that the United States has agreed to

[30] See Balls (2003).
[31] See IEO (2002).
[32] For a detailed description, see e.g. Bluestein (2001).

demands, above all from European interests, for clearer restrictions on access to the Fund's resources. It is hoped that this new policy, which has not yet been tested, will lead in time to smaller support packages, less need for economic restrictions and more private sector involvement in any future crises.

Conclusions

The IMF can be said to be a competent and important organisation with a central function for promoting international financial stability. The Fund is also a natural centre for discussing matters to do with macroeconomics and financial stability. Following the terrorist attacks on 11 September 2001, the Fund's role in promoting economic growth and stability in emerging market economies has acquired increased weight. As globalisation proceeds, the task of strengthening confidence in the economic policy of member countries has become still more central and here the IMF plays a major role. The Fund faces the challenge of managing the consequences of globalisation, promoting stability and rendering international capital flows less volatile. Stricter lending limits and better mechanisms for managing debt crises, combined with increased private sector involvement in crisis management, can lead in time to a further enhancement of international financial stability.

Stricter lending limits and better mechanisms for managing debt crises, combined with increased private sector involvement in crisis management, can lead in time to a further enhancement of international financial stability.

Although opinions still differ on the introduction of an international bankruptcy mechanism, the discussion of this issue has clearly contributed to a better understanding of matters to do with crisis management, not least among private investors. It is important that the Fund continues to keep these issues on the agenda. The debate on SDRM has also led to a consensus on other remedies in crisis management, such as collective action clauses in bond contracts. Had SDRM not been on the agenda, I do not believe we would have come nearly as far with the introduction of such clauses.

Proposals to set up an international bankruptcy mechanism have clearly contributed to a better understanding of matters to do with crisis management.

It is important that the IMF concentrates on the matters it does best: the core concern of macroeconomic and financial stability. The Fund's mandate should not be enlarged as long as there is no widespread support for increasing its resources. Neither a marked contraction nor a sizeable extension of the IMF's mandate is likely in the near future. As previously, it is rather the case that the Fund's work will be successively adapted to a changing world. There is a parallel here with a huge ocean liner – minor changes in its course can have major effects in the future.

Neither a marked contraction nor a sizeable extension of the IMF's mandate is likely in the near future.

We have also seen that the IMF is moulded by history and adapts continuously to political requirements. It should be borne in mind that the Fund is guided by the 184 member countries. It derives its legitimacy

The IMF is guided by 184 member countries.

from these countries' representation on the executive board and from the six-monthly meetings of their finance ministers and central bank governors. This tends to be overlooked in the debate, enabling the owners to direct the Fund but duck the criticism, which is aimed instead at the institution as though this were an independent body.

Better cooperation with the World Bank and a clear division of responsibilities between the two institutions would be desirable in work with the poorest countries.

The criticism of the IMF must be said to be justified in a number of cases, although it is important not to lose sight of its context. The Fund has tried to adapt by degrees to the new environment which is being created by the globalisation of finance markets. This tendency has been driven mainly by external forces and the ongoing debate on globalisation has been of central importance in triggering changes. The Fund also faces the challenge of promoting ownership and pruning the regulation of details in its conditionality. In the longer run the function of the IMF in the poorest countries should not be financial but focus instead on technical assistance and surveillance. A major future task in these countries is the construction of institutions. Better cooperation with the World Bank and a clear division of responsibilities between the two institutions would be desirable in work with the poorest countries. An important lesson from IMF programmes from the 1990s is the central importance of the countries perceiving that they own – and can identify themselves with – the policies the Fund prescribes. The more the economic reforms are anchored in the domestic political system, the greater is the chance of programmes succeeding. The IMF should continue to build up a culture of listening and learning. The Fund is well worth the support of small countries.

Annex: A historical review

The IMF was conceived at the Bretton Woods conference in 1944.

In 1944 the Allies assembled for a conference in Bretton Woods to realise the notion of an international institution that would organise the system of international payments. The purpose behind the formation of the IMF[33] was to promote the stability of the international financial system by supporting a global system of exchange rates[34] – fixed but adjustable – and thereby encourage economic growth.[35] The Fund focused on whether the member countries' fiscal and monetary policies were consistent with their exchange rates. In the event of persistent imbalances, precautions were taken so that the related devaluations would not have destabilising economic or financial effects on neighbouring countries.

FACTORS BEHIND THE FUND'S DEVELOPMENT

Since its conception in 1944 the Fund has increased its membership more than fivefold and now has 184 member countries.

The founders of the IMF would hardly recognise their institution in its current guise. For one thing, the number of member countries is now far greater: since the start in 1944 the *number of members* has more than quintupled and this has obliged the Fund to focus on a broader spectrum of issues. Today the IMF is made up of 184 member countries – in principle, they include all countries of some importance. The increased number of poor member countries after decolonisation had begun in the 1960s led in time to a stronger focus on structural issues. A separate borrowing arrangement for the poorest member countries,[36] financed with donations and individual country loans, was set up in the mid 1980s. Since 1999 this facility has focused more on matters to do with poverty reduction and economic growth.[37] Another milestone in the growth of membership was the inclusion of the former Soviet republics in the early 1990s; this accentuated the focus on structural issues in the work of transforming the former centrally-planned economies into market economies.

The Bretton Woods system collapsed in 1970 and since then more and more countries have introduced more flexible exchange rate regimes.

The IMF has also been influenced by and had to adapt to the environment in which it operates. The Bretton Woods system was based on fixed exchange rates and transferred the central function of gold to the US dollar. The system's ultimate collapse was due to an inherent instability. When a country had exhausted its dollar assets, it could always resort to a devaluation, which is what happened in the United Kingdom in

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[33] This article concentrates on the IMF but there are close links with its sister organisation the World Bank.

[34] Known as the Bretton Woods system.

[35] Article 1 in the IMF's articles of association states that "The purposes of the IMF are…to promote exchange stability, to maintain orderly exchange arrangements among members…to facilitate the expansion and balanced growth of international trade, and to contribute thereby to the promotion and maintenance of high levels of employment and real income…".

[36] In the period 1987–99 the Enhanced Structural Adjustment Facility (ESAF).

[37] The Poverty Reduction and Growth Facility (PRGF).

1967. Another problem was the Bretton Woods system's vulnerability to shortcomings in US monetary policy. In order to maintain fixed exchange rates, other countries were forced to keep inflation at the same level as in the United States. This proved difficult when US inflation was high in the late 1960s. Following the collapse of the Bretton Woods system in 1970, more and more countries have adopted more flexible exchange rate regimes and the IMF has had to adapt to the new environment.

Since the 1980s the IMF has come to be a "firefighter" in the international financial system.

The oil price shock in the mid 1970s and the debt crisis in Latin America in the 1980s entailed markedly increased lending by the Fund. During the 1980s debt crisis the IMF was forced to admit that there is room for private loans to individual countries – particularly from private banks. With the growth of international capital markets since then, the IMF has come to be a "firefighter" in the international financial system, not least in the past ten years.

The growing extent of international capital movements is perhaps the single most important factor behind the functions of the IMF and its focus in the 57 years of its existence.

The strains to which the international payment system was exposed in the 1960s were attributed in part to the supply of international liquidity being inadequate in relation to the growth of world trade. In 1967 the IMF therefore decided to create Special Drawing Rights (SDR).[38] The idea was that the foreign exchange reserves of member countries could be supplemented with SDR from the Fund. In practice, however, SDR did not play the intended role because access to the expanding international capital markets enabled countries to obtain capital in other ways. The growing extent of international *capital movements* in recent decades is perhaps the single most important factor behind the functions of the IMF and its focus in the 57 years of its existence.

CURRENT OPERATIONS OF THE IMF

In general, the IMF's operations are dominated by three main areas: surveillance, lending and technical assistance. While this has been constant over time, changes have occurred in the content of the operations.

The Fund's charter stipulates regular economic surveillance of the member countries.

As regards surveillance, the Fund's charter stipulates that the economies of the member countries are to be under regular surveillance.[39] This global surveillance, which is also practiced at regional level (e.g. for the euro area), makes the Fund unique among international organisations. The global surveillance is presented twice a year in a report, World Economic Outlook, in which the Fund assesses the global economic situation. Since 2002 these reports are accompanied by an assessment of financial market stability in the Global Financial Stability Report.

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[38] For a fuller discussion of the origins of SDR and their function, see Nedersjö (2003).
[39] Article IV, section 3(b).

The Fund provides loans of various types to members with a crisis in their payments or capital balance. A condition for obtaining the loans is that the country makes necessary reforms and conducts a sound economic policy. These loans are financed from the member countries' contributions to the Fund, which are linked in turn to the size of the members' economies. The loans are intended to act as a catalyst – an IMF programme is to elicit financing from other sources, e.g. private investment. The country contributions also regulate the influence of the countries on the Fund's executive board. Lending was directed previously to industrialised countries in particular but today it goes entirely to emerging market economies and poor member countries. As already mentioned, the financing of loans to the poorest countries is separated from that of regular lending, which is arranged on market terms.[40]

The Fund currently provides loans only to emerging market economies and poor member countries.

The third major area, technical assistance to member countries, ranges from everything from fiscal policy training in Washington to building up a central bank in a member country.

INSTITUTIONAL STRUCTURE

The IMF and the World Bank are the only two international financial institutions with a global membership. The executive board of the IMF consists of 24 members, each representing a country or group of countries, generally arranged geographically. The largest countries have one member each. The direction of the board's policy is guided by the International Monetary and Financial Committee (IMFC), consisting of 24 finance ministers and central bank governors and meeting twice a year. Following the financial crisis in Asia, various models for enhancing the Fund's legitimacy were discussed and this led to the creation of a sub-committee to the IMFC; since 1999 this sub-committee meets to prepare the meetings of the parent committee.

The executive board of the IMF consists of 24 members, each representing a different country or group of countries, generally arranged geographically.

The *institutional structure* has undergone major changes in recent decades. In 1962 the ten largest economies at the time made a joint commitment under the General Arrangements to Borrow (GAB) to place funds at the disposal of the IMF if a financial crisis of systemic proportions occurred at a time when the Fund lacked adequate resources. This Group of Ten[41] came to be a central forum for discussion, not least for central banks in the framework of BIS cooperation. The G10 finance ministers and central bank governors regularly met in connection with meetings of

[40] The interest (rate of charge) that programme countries pay the IMF is calculated as an average of the short-term rates for the four largest currencies. As a country in a crisis would probably have to pay many times more than this at market values, the rate cannot be said to mirror market terms.

[41] The G7 countries plus Belgium, the Netherlands, Sweden and Switzerland.

the IMF's policy committee and exerted an influence on the IMF's agenda up to the early 1990s.

A desire by the major countries for a closer integration of the emerging market economies in the discussion of international financial issues led to the creation of the Group of Twenty in 1999.

Since then, and particularly in the second half of the 1990s, the central importance of the G10 has waned. A crucial factor here is that matters to do with the international financial system have been coordinated more and more in the G7. The G10 cooperation on the central bank side continues relatively unchanged but the major countries have greatly reduced the priority they accord to the cooperation between central banks and finance ministries in this group.[42] Together with a desire by the major countries for a closer integration of the emerging market economies in the discussion of international financial issues, the increased importance of the G7 led in 1999 to the creation of the G20, which is made up of the G7 and thirteen of the more important emerging market economies.

The above development has been accompanied by the EU countries' growing ambition to coordinate their positions on IMF-related issues. One result of this coordination has been that for some years now the EU Presidency has presented an EU statement in connection with the IMCF meetings. The goals for this coordination have been raised in the past three years and the positions on certain central IMF issues are now coordinated in Brussels within the framework of the Economic and Financial Committee. This cooperation is followed up and implemented through regular meetings of representatives of the EU countries in Washington. This process is till in its infancy but there is a political will to continue and deepen this coordination.

[42] The G10 countries do, however, still contribute more than 54 per cent of the Fund's financing and have also provided additional bilateral financing when IMF liquidity has called for this, e.g. in connection with the crisis in Brazil in 1998.

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Notices

Commemorative coin to commemorate the 700th anniversary of the birth of Saint Birgitta

To commemorate the 700th anniversary of the birth of Saint Birgitta, the Riksbank issued a commemorative 200-krona coin in silver and a 2,000-krona coin in gold. The prices of the coins were set at SEK 250 and SEK 2,500 respectively.

The obverse of both coins contains a representation of Saint Birgitta and the text "1303 • BIRGITTA • 2003"; under this is the artist's signature "EN". The reverse of the gold coin depicts the first letter in Saint Birgitta's name, B, in Gothic type and carries the following text in clockwise direction "GAUDE BIRGITTA FILIA CANTICUM TIBI DEBETUR GLORIE" (approx. "Rejoice O daughter Birgitta, for you are worthy of glorious songs of praise"). The reverse of the silver coin depicts Birgitta's crown with its 5 points, on top of which is a cross and the same text as on the gold coin. The Latin text on both coins has been taken from a medieval hymn of praise. Both coins have a smooth edge.

The artist is Ernst Nordin, who is renowned in the fields of coins, medallions and sculpture.

New methods for collecting balance of payments statistics

On 5 June 2003 the Riksbank presented the first quarterly results of the balance of payments statistics for 2003, which are gathered using new methods with effect from January.

The new balance of payments statistics are gathered completely by means of questionnaires aimed at companies and others with cross-border transactions. With regard to the statistics gathered up to the end of 2002, payments between Sweden and other countries provided an important source. As of 1 January this year, all payment reporting for statistical purposes ceased. In connection with the changeover to questionnaires, part of the responsibility for gathering statistics was transferred to Statistics Sweden. This mainly comprises data on trade in services and transfers. One motive for the changeover is to safeguard the quality of the balance of payments statistics.

The change in method for collecting balance of payments statistics may temporarily lead to differences in levels in the series for the balance of payments at the end of 2002/beginning of 2003. Therefore, the Riksbank and Statistics Sweden will together work on further development of methods for the new form of collection and when the survey has stabilised, adjustments will be made for any break in time series.

A more detailed account of the balance of payments can be found on the Riksbank's website, www.riksbank.se.

Nordic central banks sign Memorandum of Understanding on management of financial crises

At their meeting in Stykkishólmur, Iceland, on 11 June 2003, the Governors of the central banks of Denmark, Finland, Iceland, Norway and Sweden signed a Memorandum of Understanding (MoU) on financial crisis management.

The MoU is applicable when a severe problem occurs in a bank which is domiciled in a Nordic country and has cross-border establishments in other Nordic countries. In recent years, a number of banks have established themselves outside their countries of domicile — including several banks in the Nordic area. This makes it necessary for central banks to undertake joint analysis, discussion and action in the event of a financial crisis. The MoU deals only with the cooperation between the central banks and does not affect other international agreements. The focus of the Nordic MoU is on practical arrangements.

Swedish monetary policy and EMU

In June 2003, the Riksbank published a brochure entitled *Swedish monetary policy and EMU*. The brochure elucidates a number of important, practical monetary policy issues that would arise if Sweden adopted the euro. The brochure is available as a PDF-file on the Riksbank's website, www.riksbank.se, under the heading Publications.

The Swedish Financial Market 2003

In July 2003, the Riksbank published *The Swedish Financial Market 2003*. This publication is issued once a year. Its purpose is to provide, with the aid of the statistics available in this field, a clear and pedagogical account of the Swedish financial system. It is published in both Swedish and English. Both versions are available as a PDF-file on the Riksbank's website, www.riksbank.se, under the heading Publications.

The Riksbank's comments on the result of the referendum

The result of the referendum – that a majority of the Swedish population says "no" to introducing the euro – means that the Riksbank will continue to conduct monetary policy on the basis of an inflation target of 2 per cent with a tolerated deviation interval of ±1 percentage point. There will be no change in the way this policy is conducted.

Monetary policy calender

1999-01-04 The *reference* (official discount) *rate* is confirmed by the Riksbank at 1.5 per cent as of 5 January 1999.

02-12 The *fixed repo rate* is lowered by the Riksbank to 3.15 per cent as of 17 February 1999. The Riksbank also lowers its *deposit* and *lending rates*, in each case by 0.5 percentage points. The deposit rate is set at 2.75 per cent and the lending rate at 4.25 per cent. The decision takes effect on 17 February 1999.

03-25 The *fixed repo rate* is lowered by the Riksbank from 3.15 per cent to 2.90 per cent as of 31 March 1999.

04-01 The *reference* (official discount) *rate* is confirmed by the Riksbank at 1.0 per cent as of 6 April 1999.

07-01 The reference (official discount) *rate* is confirmed by the Riksbank at 1.0 per cent (unchanged).

10-01 The *reference* (official discount) *rate* is confirmed by the Riksbank at 1.5 per cent as of 4 October 1999.

11-11 The *repo rate* is increased by the Riksbank from 2.90 per cent to 3.25 as of 17 November 1999.

2000-01-03 The *reference* (official discount) *rate* is confirmed by the Riksbank at 2.0 per cent as of 4 January 2000.

02-03 The *repo rate* is increased by the Riksbank from 3.25 per cent to 3.75 as of 9 February 2000.

04-03 The *reference* (official discount) *rate* is confirmed by the Riksbank at 2.5 per cent as of 4 April 2000.

12-07 The *repo rate* is increased by the Riksbank from 3.75 per cent to 4.0 per cent as of 13 December 2000. The Riksbank also increases its *deposit* and *lending rates* in each case by 0,5 percentage points. The deposit rate is set at 3.25 per cent and the lending rate at 4.75 per cent. The decision takes effect on 13 December 2000.

2001-07-05 The *repo rate* is increased by the Riksbank from 4.0 per cent to 4.25 per cent as of 11 July 2001. The Riksbank also increases its *deposit* and *lending rates* in each case by 0.25 percentage points. The deposit rate is set at 3.5 per cent and the lending rate at 5.0 per cent. The decision takes effect on 11 July 2001.

09-17 The *repo rate* is lowered by the Riksbank from 4.25 per cent to 3.75 per cent as of 19 September 2001. The Riksbank also lowers its *deposit* and *lending rates* in each case by 0.50 percentage points. The deposit rate is set at 3.0 per cent and the lending rate at 4.5 per cent. The decision takes effect on 19 September 2001.

2002-03-18 The *repo rate* is increased by the Riksbank from 3.75 per cent to 4.0 per cent as of 20 March 2002. The *deposit rate* is accordingly adjusted to 3.25 per cent and the *lending rate* to 4.75 per cent.

04-25 The *repo rate* is increased by the Riksbank from 4.0 per cent to 4.25 per cent as of 2 May 2002. The *deposit rate* is accordingly adjusted to 3.5 per cent and the *lending rate* to 5.0 per cent.

06-28 The *reference rate* is confirmed by the Riksbank at 4,5 per cent for the period 1 July 2002 to 31 December 2002.

11-15 The repo rate is lowered by the Riksbank from 4.25 per cent to 4.0 per cent as of 20 November 2002. The deposit rate is accordingly set at 3.25 per cent and the lending rate to 4.75 per cent.

12-05 The *repo rate* is lowered by the Riksbank from 4.0 per cent to 3.75 per cent as of 11 December 2002. The *deposit rate* is accordingly set at 3.0 per cent and the *lending rate* to 4.5 per cent.

2003-01-01

03-17 The Riksbank decides to lower the *repo rate* from 3.75 per cent to 3.50 per cent, to apply from 19 March 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.75 per cent and 4.25 per cent respectively.

06-05 The Riksbank decides to lower the *repo rate* from 3.50 per cent to 3.00 per cent, to apply from 11 June 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.25 per cent and 3.75 per cent respectively.

07-04 The Riksbank decides to lower the *repo rate* from 3.0 per cent to 2.75 per cent, to apply from 9 July 2003. Furthermore, the Riksbank decides that the *deposit* and *lending rates* shall be adjusted to 2.00 per cent and 3.50 per cent respectively.

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Statistics from Sveriges Riksbank are to be found on the Internet (www.riksbank.se). Dates of publication of statistics regarding the Riksbank's assets and liabilities including foreign exchange reserves plus financial market and the balance of payments statistics are available on the website of the International Monetary Fund (IMF) (dsbb.imf.org). Dates of publication can also be obtained from the Information Riksbanken at Sveriges Riksbank.

1 Riksbank's assets and liabilities

ASSETS. PERIOD-END STOCK FIGURES. SEK MILLION

		Gold	Lending to banks	Fixed assets	Other	Total
2002	Jan	17 436	59 249	153 172	3 008	232 865
	Feb	17 436	56 564	154 218	3 266	231 484
	March	17 436	55 400	157 307	1 749	231 892
	April	17 436	53 522	151 943	3 902	226 803
	May	17 436	35 455	165 959	2 881	221 731
	June	17 436	21 635	161 820	2 233	203 124
	July	17 436	21 631	159 602	2 381	201 050
	Aug	17 436	23 176	163 286	2 360	206 258
	Sept	17 436	22 393	157 865	2 280	199 974
	Oct	17 436	22 233	157 437	2 234	199 340
	Nov	17 436	23 582	157 993	2 369	201 380
	Dec	17 436	30 714	159 791	2 806	210 747
2003	Jan	18 210	22 849	153 407	11 021	205 488
	Feb	18 210	23 405	155 029	6 759	203 403
	March	18 210	22 619	151 184	11 678	203 691
	April	18 210	23 276	156 777	3 306	201 569
	May	18 210	15 938	157 470	7 006	198 624
	June	18 210	15 674	159 341	2 259	195 484
	July	18 210	15 601	158 042	1 723	193 576
	Aug	18 210	17 186	161 861	3 642	200 899
	Sept	18 210	15 206	161 340	2 444	197 200
	Oct	18 210	14 971	163 016	1 198	197 395

LIABILITIES. PERIOD-END STOCK FIGURES. SEK MILLION

		Notes and coins in circulation	Capital liabilities	Debts to monetary policy counterparties	Debts in foreign currency	Other	Total
2002	Jan	98 571	70 890	402	10 203	52 799	232 865
	Feb	97 395	70 890	89	11 090	52 020	231 484
	March	98 790	70 890	59	10 991	51 162	231 892
	April	97 023	70 890	525	7 823	50 542	226 803
	May	97 140	82 943	204	9 666	31 778	221 731
	June	97 931	62 943	52	9 640	32 558	203 124
	July	96 728	62 943	413	8 085	32 881	201 050
	Aug	98 367	62 943	133	10 450	34 365	206 258
	Sept	97 648	62 943	79	4 699	34 605	199 974
	Oct	97 411	62 943	117	3 675	35 194	199 340
	Nov	99 061	62 943	17	3 673	35 686	201 380
	Dec	107 439	62 943	87	3 664	36 614	210 747
2003	Jan	99 614	62 943	58	3 674	39 199	205 488
	Feb	100 475	62 943	33	3 327	36 625	203 403
	March	99 701	62 943	33	3 300	37 714	203 691
	April	100 318	62 943	98	4 135	34 075	201 569
	May	100 483	50 556	22	3 323	44 240	198 624
	June	100 142	50 556	123	4 173	40 490	195 484
	July	100 055	50 556	100	2 939	39 926	193 576
	Aug	101 644	50 556	69	7 247	41 383	200 899
	Sept	100 136	50 556	89	4 933	41 486	197 200
	Oct	99 987	50 556	58	6 483	40 311	197 395

2 Money supply

END-OF-MONTH STOCK

		SEK million			Percentage 12-month change	
		M0	M3		M0	M3
2000	Jan	82 276	949 834	Jan	10.2	8.5
	Feb	81 072	951 449	Feb	9.0	8.9
	March	81 105	944 846	March	8.0	8.1
	April	81 606	966 643	April	8.4	9.5
	May	81 866	984 906	May	7.3	10.7
	June	81 399	953 349	June	6.9	5.9
	July	81 370	944 491	July	6.0	5.7
	Aug	82 232	949 502	Aug	5.7	4.3
	Sept	82 947	966 556	Sept	6.0	4.9
	Oct	82 758	970 565	Oct	4.5	2.0
	Nov	84 004	975 144	Nov	4.4	4.1
	Dec	88 881	974 091	Dec	2.0	2.8
2001	Jan	84 327	960 545	Jan	2.5	1.1
	Feb	84 282	947 276	Feb	4.0	–0.4
	March	85 188	969 559	March	5.0	2.6
	April	86 379	975 366	April	5.8	0.9
	May	86 711	983 764	May	5.9	–0.1
	June	87 288	1 012 094	June	7.2	6.2
	July	86 705	977 812	July	6.6	3.5
	Aug	87 693	985 811	Aug	6.6	3.8
	Sept	87 892	1 008 439	Sept	6.0	4.3
	Oct	88 809	1 022 639	Oct	7.3	5.4
	Nov	89 947	1 039 646	Nov	7.1	6.6
	Dec	96 743	1 038 972	Dec	8.8	6.7
2002	Jan	89 737	1 031 807	Jan	6.4	7.4
	Feb	88 950	1 014 905	Feb	5.5	7.1
	March	89 998	1 033 020	March	5.6	6.5
	April	88 666	1 049 030	April	2.6	7.6
	May	88 818	1 025 757	May	2.4	4.3
	June	89 383	1 053 910	June	2.4	4.1
	July	88 631	1 037 162	July	2.2	6.1
	Aug	89 945	1 051 986	Aug	2.6	6.7
	Sept	89 567	1 061 341	Sept	1.9	5.2
	Oct	89 461	1 051 867	Oct	0.7	2.9
	Nov	90 465	1 068 389	Nov	0.6	2.8
	Dec	95 866	1 086 057	Dec	–0.9	4.5
2003	Jan	90 122	1 085 994	Jan	0.4	5.3
	Feb	90 505	1 072 732	Feb	2.9	5.7
	March	91 966	1 092 435	March	2.2	5.8
	April	92 334	1 095 256	April	4.1	4.4
	May	92 346	1 097 622	May	4.0	7.0
	June	92 296	1 106 661	June	3.3	5.0
	July	91 608	1 090 284	July	3.4	5.1
	Aug	93 324	1 109 725	Aug	3.8	5.5
	Sept	92 451	1 113 021	Sept	3.2	4.9

3 Interest rates set by the Riksbank

PER CENT

	Date of announcement	Repo rate	Deposit rate	Lending rate	Period	Reference rate[1]
2000	02-04	3.75			2002:2 half-year	4.50
	12-07	4.00	3.25	4.75	2003:1 half-year	4.00
2001	07-06	4.25	3.50	5.00	2003:2 half-year	3.00
	09-17	3.75	3.00	4.50		
2002	03-19	4.00	3.25	4.75		
	04-26	4.25	3.50	5.00		
	11-15	4.00	3.25	4.75		
	12-05	3.75	3.00	4.50		
2003	03-18	3.50	2.75	4.25		
	06-05	3.00	2.25	3.75		
	07-04	2.75	2.00	3.50		

[1] 1 July 2002 the official discount rate was replaced by a reference rate, which is set by the Riksbank at the end of June and the end of December.

4 Capital market interest rates

EFFECTIVE ANNUALIZED RATES FOR ASKED PRICE. MONTHLY AVERAGE. PERCENT

		Bonds issued by:					
		Central Government				Housing institutions	
		3 years	5 years	7 years	9–10 years	2 years	5 years
2002	Jan	4.53	5.01	5.17	5.27	4.71	5.40
	Feb	4.76	5.18	5.28	5.36	4.94	5.57
	March	5.05	5.46	5.55	5.63	5.22	5.83
	April	5.10	5.46	5.56	5.69	5.28	5.85
	May	5.10	5.45	5.56	5.69	5.25	5.85
	June	4.94	5.27	5.39	5.52	5.09	5.65
	July	4.73	5.06	5.20	5.37	5.08	5.45
	Aug	4.52	4.83	4.96	5.13	4.86	5.21
	Sept	4.42	4.62	4.77	4.97	4.69	5.03
	Oct	4.29	4.62	4.80	5.07	4.52	5.07
	Nov	4.15	4.54	4.75	5.05	4.36	4.96
	Dec	3.99	4.39	4.59	4.89	4.16	4.79
2003	Jan	3.79	4.23	4.36	4.70	3.99	4.54
	Feb	3.56	3.97	4.11	4.47	3.77	4.27
	March	3.53	4.03	4.17	4.57	3.86	4.34
	April	3.59	4.17	4.30	4.72	3.93	4.57
	May	3.25	3.77	3.90	4.37	3.56	4.16
	June	2.97	3.53	3.59	4.20	3.11	3.80
	July	3.22	3.85	3.85	4.51	3.21	4.06
	Aug	3.58	4.18	4.18	4.70	3.55	4.42
	Sept	3.54	4.18	4.18	4.73	3.50	4.42
	Oct	3.62	4.31	4.31	4.85	3.53	4.54

5 Overnight and money market interest rates

MONTHLY AVERAGE. PER CENT

		Repo rate	Interbank rate	SSVX[1]			Company certificates	
				3 months	6 months	12 months	3 months	6 months
2000	Jan	3.25	3.35	3.57	3.86		3.77	4.05
	Feb	3.61	3.71	3.90	4.22		4.11	4.43
	March	3.75	3.85	4.06	4.29	4.74	4.27	4.53
	April	3.75	3.85	3.99	4.16		4.21	4.45
	May	3.75	3.85	3.96	4.09	4.57	4.21	4.43
	June	3.75	3.85	3.94	4.04	4.56	4.15	4.44
	July	3.75	3.85	4.03	4.21		4.31	4.66
	Aug	3.75	3.85	4.00	4.21	4.59	4.23	4.50
	Sept	3.75	3.85	3.94	4.04	4.51	4.14	4.36
	Oct	3.75	3.85	3.99	4.09		4.15	4.31
	Nov	3.75	3.85	4.00	4.09	4.50	4.14	4.26
	Dec	3.89	3.99	4.07	4.22	4.37	4.19	4.38
2001	Jan	4.00	4.10	4.07	4.12		4.17	4.26
	Feb	4.00	4.10	4.01	4.07		4.14	4.23
	March	4.00	4.10	4.06	4.02	4.11	4.24	4.23
	April	4.00	4.10	3.94	3.98	4.01	4.12	4.11
	May	4.00	4.10	4.01	4.06	4.28	4.16	4.20
	June	4.00	4.10	4.17	4.27	4.48	4.39	4.46
	July	4.17	4.27	4.31	4.42		4.50	4.58
	Aug	4.25	4.35	4.28	4.31	4.37	4.45	4.48
	Sept	4.05	4.15	4.01	4.06	4.15	4.18	4.22
	Oct	3.75	3.85	3.70	3.72		3.90	3.91
	Nov	3.75	3.85	3.71	3.74	3.91	3.89	3.87
	Dec	3.75	3.85	3.71	3.76	3.97	3.96	3.96
2002	Jan	3.75	3.85	3.74	3.81		3.94	3.97
	Feb	3.75	3.85	3.87	3.99		4.01	4.14
	March	3.84	3.94	4.09	4.29	4.64	4.27	4.43
	April	4.00	4.10	4.25	4.41		4.52	4.69
	May	4.25	4.35	4.29	4.48	4.79	4.64	4.79
	June	4.25	4.35	4.28	4.42	4.71	4.88	5.00
	July	4.25	4.35	4.26	4.37		4.89	4.95
	Aug	4.25	4.35	4.19	4.29	4.43	4.83	4.87
	Sept	4.25	4.35	4.17	4.21	4.29	4.82	4.84
	Oct	4.25	4.35	4.07		4.14	4.67	4.64
	Nov	4.15	4.25	3.91	3.84	3.93	4.20	4.19
	Dec	3.85	3.95	3.66	3.68	3.77	3.97	3.95
2003	Jan	3.75	3.85	3.65			3.90	3.88
	Feb	3.75	3.85	3.61	3.40	3.55	3.85	3.79
	March	3.64	3.74	3.40	3.36	3.35	3.64	3.57
	April	3.50	3.60	3.42			3.62	3.59
	May	3.50	3.60	3.18	2.96		3.43	3.37
	June	3.16	3.26	2.81	2.71	2.61	3.03	2.94
	July	2.82	2.92	2.68			2.87	2.82
	Aug	2.75	2.85	2.71	2.81		2.88	2.90
	Sept	2.75	2.85	2.71	2.73	2.91	2.88	2.92
	Oct	2.75	2.85	2.73			2.89	2.93

[1] Treasury bills.

6 Treasury bill and selected international rates

MONTHLY AVERAGE. PER CENT

		3-months deposits				6-months deposits			
		USD	EUR	GBP	SSVX[1]	USD	EUR	GBP	SSVX[1]
2000	Jan	5.93	3.28	6.00	3.57	6.14	3.50	6.25	3.86
	Feb	5.99	3.47	6.09	3.90	6.24	3.67	6.27	4.22
	March	6.12	3.70	6.10	4.06	6.34	3.89	6.29	4.29
	April	6.24	3.88	6.16	3.99	6.48	4.02	6.32	4.16
	May	6.66	4.29	6.16	3.96	6.93	4.48	6.31	4.09
	June	6.70	4.43	6.09	3.94	6.87	4.61	6.20	4.04
	July	6.63	4.52	6.05	4.03	6.83	4.76	6.16	4.21
	Aug	6.59	4.72	6.08	4.00	6.74	4.95	6.20	4.21
	Sept	6.58	4.78	6.05	3.94	6.67	4.96	6.15	4.04
	Oct	6.65	4.98	6.01	3.99	6.63	5.04	6.12	4.09
	Nov	6.64	5.03	5.95	4.00	6.61	5.06	5.97	4.09
	Dec	6.41	4.85	5.83	4.07	6.26	4.85	5.80	4.22
2001	Jan	5.62	4.71	5.69	4.07	5.47	4.62	5.59	4.12
	Feb	5.25	4.70	5.61	4.01	5.11	4.61	5.53	4.07
	March	4.87	4.64	5.41	4.06	4.72	4.51	5.31	4.02
	April	4.53	4.64	5.25	3.94	4.40	4.53	5.14	3.99
	May	3.99	4.58	5.09	4.01	3.99	4.50	5.07	4.06
	June	3.74	4.40	5.10	4.17	3.74	4.28	5.18	4.27
	July	3.66	4.41	5.11	4.31	3.69	4.33	5.18	4.41
	Aug	3.48	4.30	4.87	4.28	3.49	4.17	4.88	4.35
	Sept	2.92	3.91	4.56	4.01	2.89	3.78	4.49	4.06
	Oct	2.31	3.54	4.27	3.70	2.25	3.39	4.25	3.72
	Nov	2.01	3.32	3.88	3.71	2.02	3.20	3.86	3.74
	Dec	1.84	3.27	3.94	3.71	1.90	3.19	3.96	3.76
2002	Jan	1.74	3.28	3.94	3.74	1.85	3.28	4.04	3.81
	Feb	1.81	3.30	3.94	3.87	1.94	3.33	4.08	3.99
	March	1.91	3.34	4.03	4.09	2.15	3.45	4.23	4.29
	April	1.87	3.39	4.06	4.25	2.11	3.47	4.26	4.41
	May	1.82	3.40	4.05	4.29	2.01	3.56	4.26	4.48
	June	1.79	3.41	4.06	4.28	1.93	3.52	4.27	4.42
	July	1.76	3.34	3.94	4.26	1.82	3.40	4.07	4.37
	Aug	1.69	3.28	3.90	4.19	1.69	3.31	3.91	4.29
	Sept	1.73	3.24	3.88	4.17	1.71	3.18	3.89	4.21
	Oct	1.71	3.20	3.88	4.07	1.67	3.08	3.87	
	Nov	1.39	3.07	3.88	3.91	1.40	2.96	3.89	3.84
	Dec	1.33	2.86	3.92	3.66	1.34	2.81	3.92	3.68
2003	Jan	1.27	2.76	3.88	3.65	1.29	2.69	3.87	
	Feb	1.25	2.63	3.65	3.61	1.25	2.51	3.59	3.40
	March	1.19	2.47	3.56	3.40	1.17	2.39	3.50	3.36
	April	1.22	2.48	3.54	3.42	1.20	2.41	3.48	
	May	1.20	2.35	3.53	3.18	1.16	2.25	3.49	2.96
	June	1.03	2.09	3.55	2.81	1.00	2.02	3.48	2.71
	July	1.04	2.08	3.38	2.68	1.05	2.04	3.37	
	Aug	1.05	2.09	3.43	2.71	1.11	2.12	3.52	2.81
	Sept	1.06	2.09	3.60	2.71	1.10	2.12	3.70	2.73
	Oct	1.08	2.09	3.72	2.73	1.12	2.12	3.87	

[1] Treasury bills.

7 Krona exchange rate: TCW index and selected exchange rates

MONTHLY AVERAGE

			SEK				
		TCW index	USD	EUR	GBP	CHF	JPY
2000	Jan	124.5383	8.4725	8.5956	13.8900	5.3370	0.0807
	Feb	123.8107	8.6462	8.5112	13.8519	5.2965	0.0791
	March	122.7089	8.6946	8.3950	13.7382	5.2317	0.0816
	April	121.6993	8.7208	8.2700	13.8088	5.2545	0.0828
	May	122.0044	9.0894	8.2388	13.7098	5.2930	0.0841
	June	121.5567	8.7433	8.3118	13.1997	5.3268	0.0824
	July	123.2005	8.9346	8.4080	13.4783	5.4206	0.0828
	Aug	124.2636	9.2702	8.3962	13.8107	5.4137	0.0858
	Sept	125.5703	9.6569	8.4121	13.8431	5.4968	0.0905
	Oct	128.0479	9.9618	8.5266	14.4711	5.6348	0.0919
	Nov	129.2156	10.0780	8.6271	14.3730	5.6705	0.0925
	Dec	128.0290	9.6607	8.6629	14.1196	5.7238	0.0862
2001	Jan	129.6612	9.4669	8.8963	14.0052	5.8170	0.0811
	Feb	131.1553	9.7350	8.9736	14.1555	5.8438	0.0838
	March	133.4701	10.0316	9.1254	14.4988	5.9416	0.0828
	April	133.8280	10.1987	9.1103	14.6320	5.9593	0.0824
	May	133.9895	10.3333	9.0536	14.7412	5.9019	0.0848
	June	137.0501	10.7753	9.2010	15.0876	6.0421	0.0882
	July	137.4779	10.7666	9.2557	15.2105	6.1150	0.0864
	Aug	136.6723	10.3343	9.3036	14.8466	6.1433	0.0851
	Sept	142.0389	10.6089	9.6670	15.5179	6.4799	0.0894
	Oct	140.6226	10.5630	9.5798	15.3446	6.4725	0.0871
	Nov	138.9180	10.5965	9.4131	15.2278	6.4196	0.0866
	Dec	138.6116	10.5594	9.4436	15.2024	6.4006	0.0832
2002	Jan	135.7390	10.4398	9.2292	14.9642	6.2594	0.0788
	Feb	135.6543	10.5603	9.1869	15.0223	6.2179	0.0791
	March	133.8096	10.3396	9.0600	14.7064	6.1690	0.0789
	April	134.8265	10.3105	9.1331	14.8742	6.2300	0.0788
	May	135.2764	10.0519	9.2236	14.6763	6.3300	0.0796
	June	132.6093	9.5591	9.1190	14.1612	6.1959	0.0774
	July	134.3652	9.3400	9.2705	14.5199	6.3380	0.0791
	Aug	134.3777	9.4641	9.2524	14.5486	6.3235	0.0795
	Sept	133.2278	9.3504	9.1735	14.5449	6.2617	0.0775
	Oct	132.1625	9.2793	9.1053	14.4489	6.2156	0.0749
	Nov	131.3311	9.0655	9.0785	14.2485	6.1869	0.0746
	Dec	131.0292	8.9458	9.0931	14.1771	6.1861	0.0732
2003	Jan	130.9609	8.6386	9.1775	13.9590	6.2767	0.0727
	Feb	129.7272	8.4930	9.1499	13.6813	6.2358	0.0711
	March	130.3167	8.5298	9.2221	13.5031	6.2777	0.0720
	April	128.9566	8.4370	9.1585	13.2756	6.1248	0.0704
	May	127.1076	7.9229	9.1541	12.8520	6.0426	0.0676
	June	126.3154	7.8108	9.1149	12.9638	5.9211	0.0660
	July	127.6987	8.0807	9.1945	13.1295	5.9417	0.0681
	Aug	128.9600	8.2825	9.2350	13.2074	5.9957	0.0697
	Sept	126.7679	8.0861	9.0693	13.0143	5.8616	0.0703
	Oct	125.3358	7.6966	9.0099	12.9077	5.8195	0.0703

Note. The base for the TCW index is 18 November 1992. TCW (Total Competitiveness Weights) is a way of measuring the value of the krona against a basket of other currencies. TWC is based on average aggregate flows of processed goods for 21 countries. The weights include exports and imports as well as "third country"effects.

8 Nominell effective TCW exchange rate

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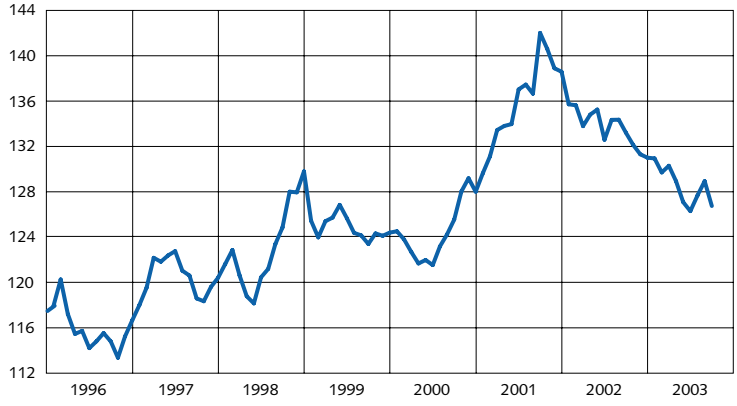

Note. TCW (Total Competitiveness Weights) is a way of measuring the value of the krona against a basket of other currencies. TCW is based on average aggregate flows of processed goods for 21 countries. The weights include exports and imports as well as "third country" effects.

9 Forward net position on the forward foreign exchange market with authorized currency dealers

REPORTING PERIOD. SEK MILLION

		Non-bank public		Banks abroad	The Riksbank	Total
		Resident (1)	Non-resident (2)	Net (3)	Net (4)	(1+2+3+4)
2002	Jan	–380 368	–29 553	229 071	–5 753	–186 603
	Feb	–378 895	–20 566	197 130	–4 226	–206 557
	March	–364 779	–14 558	170 705	–3 144	–211 776
	April	–357 495	–23 805	173 232	0	–208 068
	May	–359 267	–20 295	192 173	0	–187 389
	June	–360 494	–10 409	194 312	0	–176 591
	July	–358 252	–10 076	136 339	0	–231 989
	Aug	–313 551	–13 862	153 001	–5 161	–179 573
	Sept	–360 149	– 5 411	160 670	–5 143	–210 033
	Oct	–342 143	– 5 719	216 218	–4 924	–136 568
	Nov	–348 617	–2 260	228 042	–5 089	–127 924
	Dec	–368 834	–5 810	209 273	–5 215	–170 586
2003	Jan	–325 302	2 280	221 587	–8 275	–109 710
	Feb	–321 149	6 386	231 208	–5 113	– 88 668
	March	–327 225	5 877	205 840	–5 112	–120 620
	April	–365 842	18 728	231 999	–5 113	–120 228
	May	–350 584	19 146	250 712	–5 064	– 95 790
	June	–351 974	25 664	197 708	–5 108	–133 710
	July	–341 819	17 016	205 349	–5 091	–124 545

Note. A positive position indicates that purchases of foreign currencies exceed sales. A negative position indicates that sales of foreign currencies exceed purchases.

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