



# Sveriges Riksbank Economic Review 2000:3

---

SVERIGES RIKSBANK ECONOMIC REVIEW  
is issued by Sveriges Riksbank four times a year.

PUBLISHER: URBAN BÄCKSTRÖM  
GOVERNOR OF SVERIGES RIKSBANK

EDITOR: STAFFAN VIOTTI, KERSTIN MITLID AND THE INFORMATION DEPARTMENT  
Sveriges Riksbank, SE-103 37 Stockholm, Sweden  
Telephone +46 8 787 00 00

The views expressed in signed articles are the  
responsibility of the authors and are not to be  
regarded as representing the view of the Riksbank  
in the matters concerned.



341 123  
Trycksak

# Contents

■ The conquest of inflation—An introduction to Sargent's analysis	5
Ulf Söderström and Anders Vredin	
<i>The 1980's and the 1990's saw a decrease in inflation back to levels common before 1960 and even lower. Does this development mean that central bankers have learned to control inflation, or is the current situation of low and stable inflation simply a result of a series of favorable but temporary factors?</i>	
■ The conquest of American inflation: A summary	12
Thomas J. Sargent and Ulf Söderström	
<i>The essay compares two different interpretations of postwar U.S. inflation. Although the first story is more popular among modern macroeconomists, it suffers from contradictions and loose ends. The second story captures important features of policy making at the Federal Reserve and is more successful than the first in explaining the rise and fall of American inflation.</i>	
■ Dealing with banking crises – the proposed new regulatory framework	46
Staffan Viotti	
<i>A number of financial crises in the world have shown that the Swedish banking crisis in the early 1990s cannot be viewed as an isolated episode. Instead experience from the Swedish crisis and the way it was handled provides valuable insights when formulating the foundations for the efficient and effective regulation of the financial sector in the future.</i>	
■ The Banking Law Committee's main and final reports	64
<i>The summaries from the main and final reports of the Banking Law Committee are presented in this issue of the Economic Review. The committee's remit was to develop a new regulatory framework that would both help to reduce the risk of future banking crisis and set out more clearly how a banking crisis should be managed should one still strike.</i>	
■ Notices	93
■ Monetary policy calendar	96



■	Statistical appendix	99
■	Signed articles in earlier issues	108



# The conquest of inflation – An introduction to Sargent’s analysis

BY ULF SÖDERSTRÖM AND ANDERS VREDIN  
*Both authors are economists at the Research Department*

*During the 1960’s and the 1970’s the OECD countries witnessed a trend increase in inflation. The 1980’s and the 1990’s, on the other hand, saw a decrease in inflation, which is now back to levels common before 1960 (and even lower). Does this development mean that central bankers have learned to control inflation, or is the current situation of low and stable inflation simply a result of a series of favorable but temporary factors? Our expectations regarding the future depend in a fundamental way on the interpretation we make from the experience of the past 40–50 years.*

In this issue of the Economic Review we publish a summary of Thomas Sargent’s monograph *The Conquest of American Inflation* (Sargent, 1999). Sargent compares different theories of the determination of inflation, discusses their possible relevance to the development in the United States, and presents a new theory. This theory suggests that it may be too soon to discard the threat of inflation: disturbances to the economy, similar to those we have experienced before, could well trigger a new inflationary process.

Sargent’s analysis is an important and original contribution to the current debate, and it is therefore desirable to make the reasoning behind it available to a wider audience. Figures 1 and 2, which may be com-

---

Sargent compares different theories of the determination of inflation, discusses their possible relevance to the development in the United States, and presents a new theory.

---

---

Inflation in Sweden and the United Kingdom has followed much the same development as in the United States.

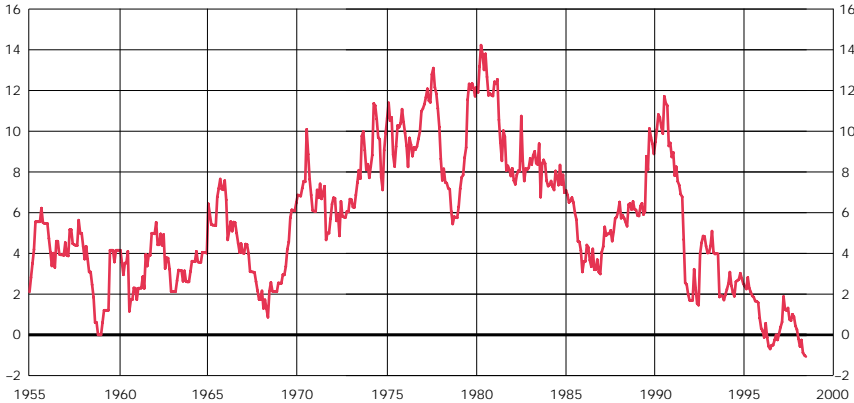
---

The authors are indebted to Marianne Nessén for comments.

pared with Figure 1 in the following summary by Sargent and Söderström, show that inflation in Sweden and the United Kingdom has followed much the same development as in the United States.<sup>1</sup> The same broad picture applies to many industrialized countries; consequently Sargent's analysis may be relevant also to other countries than the United States. In Europe many economists seem to be convinced that high inflation is a thing of the past, so Sargent's analysis may act as an eye opener. At the same time there are important differences between the U.S. and Europe. The European Central Bank, the Bank of England and Sveriges Riksbank have recently been given clearer mandates to strive for price stability than has the Federal Reserve. European central banks have also become more independent during the last decade, although the Federal Reserve has been relatively independent for a long time.

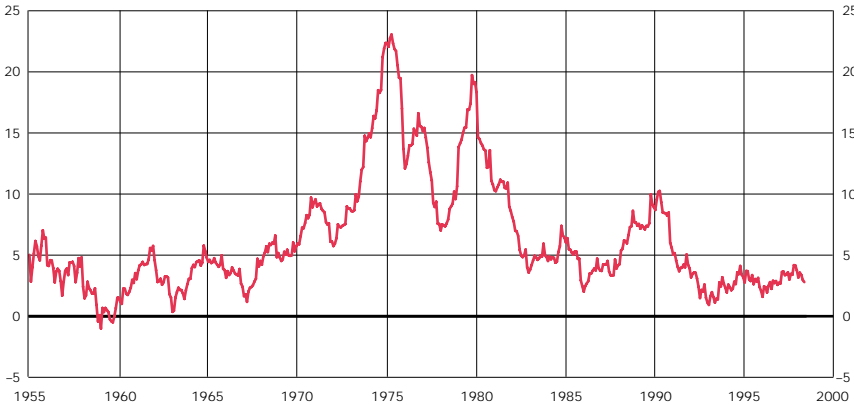
**Figure 1. Inflation (CPI) in Sweden, 1955–1998**

Monthly inflation, 13-month centered moving average, percent




**Figure 2. Inflation (RPI) in the U.K., 1955–1998**

Monthly inflation, 13-month centered moving average, percent



<sup>1</sup> Source: See Vredin and Warne (2000).



# The rise of inflation and the credibility problem of monetary policy

Many interpretations of the increase in inflation during the 1960's and 1970's stem from two influential papers by Finn Kydland and Edward Prescott (1977) and Robert Barro

---

The central banks had the desire to keep unemployment low, even lower than the equilibrium level.

---

and David Gordon (1983). In these papers, the explanation of inflation is based on three assumptions. First, the central banks had the desire to keep unemployment low, even lower than the equilibrium (or "natural") level. The fact that the equilibrium rate of unemployment is above zero is due to frictions on the labor market. During the 1960's and 1970's, central banks were not very independent, and the fight against inflation was not a high priority. It was generally accepted that central banks should do what they could to keep unemployment low and thus counteract the effects of the labor market frictions. Whether or not such a policy is at all possible depends, among other things, on the presence of nominal wage rigidities. Once nominal wage increases have been determined, the central banks are able – by creating unexpectedly high inflation – to lower real wages and thus stimulate employment.

The second important assumption in this inflation theory is that wages and other contracts are determined under rational expectations about the future conduct of monetary policy. Thus, households and firms

---

Wages and other contracts are determined under rational expectations about the future conduct of monetary policy.

---

understand that the central bank is tempted to create high inflation. This will be incorporated into their inflation expectations until the central bank does not wish to increase inflation further; the resulting expectations of high inflation are reflected in high nominal wage increases.

This situation would not arise if the central bank could commit itself to keep inflation low. However, the third assumption is


---

It is not possible to make binding commitments to keep inflation low.

---

that it is not possible to make such binding commitments. When nothing stops the central bank from reneging on its promises, the only credible inflation target is the rate of inflation at which the central bank has no incentive to create further inflation. This is the credibility problem of monetary policy.

The outcome from this analysis is that inflation on average will be inefficiently high, without any gains in the form of lower unemployment – what Sargent calls the "Nash outcome". An appealing feature of this theory is that it fits well



---

The outcome from this analysis is that inflation on average will be inefficiently high, without any gains in the form of lower unemployment.

---

with the experiences of the 1960's and 1970's. Inflation in the U.S. began to rise soon after the Federal Reserve had been recommended to lower unemployment by accepting higher inflation.

## The fall of inflation: two “traditional” interpretations

---

The theory about the credibility problem admits several interpretations of why the increase in inflation eventually was reversed. One interpretation is that there was a *complete reorientation of monetary policy*.

---

The theory about the credibility problem admits several interpretations of why the increase in inflation eventually was reversed. (For a more detailed survey, see, for example, Apel and Viotti, 1998.) One interpretation is that there was a *complete reorientation of monetary policy*: politicians and central bankers learned from experience (and from economic theory),

and decided that monetary policy should concentrate on keeping average inflation low rather than trying to affect unemployment. To accomplish such a reorientation, the goals for monetary policy must be reformulated. For example, the central bank's target for unemployment could be set to the natural rate of unemployment. Alternatively, a central bank governing board could be appointed that is both independent and “conservative”, in the sense that it gives a larger weight to fighting inflation (relative to unemployment) than does society as a whole. Introducing such an imperfection would counteract other imperfections, such as the labor market frictions or the lack of a commitment mechanism, a point made by Kenneth Rogoff (1985). A third possibility to lower inflation is through institutional changes, either directly aimed at the labor market imperfections or at ways to enforce central bank commitments.

In principle, such radical changes of the conditions underlying the Kydland-Prescott and Barro-Gordon analysis should make it possible to reach lower inflation at no cost in terms of higher unemployment. This outcome is what Sargent refers to as the “Ramsey outcome”: politicians desert the erroneous belief that monetary policy can affect unemployment in the long run, and therefore reorient policy (“the triumph of the natural rate”).

Such a complete reorientation of policy seems to be a reasonable interpretation of the developments, at least in Europe, where a number of institutional changes have been carried through. In the U.S. such reforms have not been made





to the same extent – although one could claim that the Federal Reserve has been independent and conservative nonetheless. Alternative explanations to the fall in U.S. inflation have therefore been proposed.

One explanation is that the natural rate of unemployment has fallen. Peter Ireland (1999) maintains that the fall in U.S. inflation during the 1980's and 1990's can be explained without any reorientation of monetary policy, if one assumes that the economy has been hit by favorable shocks which have lowered the natural rate of unemployment. Thus, Ireland's explanation is that the basic assumptions behind the Kydland-Prescott and Barro-Gordon story are still valid. Just as inflation increased when the economy was hit by negative shocks and a trend increase in unemployment during the 1960's and 1970's, inflation has subsequently fallen as a result of a series of favorable shocks during the 1980's and 1990's. But monetary policy, according to Ireland, has in principle remained unaltered.

At first glance, it seems more likely that the fall of inflation in Europe is due to a reorientation of monetary policy rather than to a fall in the natural rate of unemployment. On the contrary, the natural rate seemed to rise even during the 1990's. In the case of the U.S. the issue seems to be less clear.

---

A complete reorientation of policy seems to be a reasonable interpretation of the developments, at least in Europe.

---

---

One explanation is that the natural rate of unemployment has fallen.

---

---

At first glance, it seems more likely that the fall of inflation in Europe is due to a reorientation of monetary policy rather than to a fall in the natural rate of unemployment.

---


## A third interpretation: Sargent's theory

Sargent (1999) launches and tests a separate explanation of the behavior of U.S. inflation. In Sargent's model the central bank and the public are assumed to behave more or less according to the same assumptions made by Kydland-Prescott and Barro-Gordon. In this sense Sargent's analysis is consistent with that of Ireland. However, a key element in Sargent's reasoning is that the central bank has incomplete knowledge about the true relationship between inflation and unemployment, that is, the "Phillips curve". The central bank updates its beliefs about the Phillips curve relationship as new information about unemployment and inflation arrives, but puts a larger

---

The relationship between inflation and unemployment depends on the conduct of monetary policy, and as policy changes, so does the estimated Phillips curve.

---



weight on more recent information, and is less influenced by experiences from the past. Such behavior could be motivated by the fact that the central bank does not believe in a stable Phillips curve, but rather suspects that this relationship changes over time. By its very behavior, the central bank makes these beliefs self-fulfilling: the relationship between inflation and unemployment depends on the conduct of monetary policy, and as policy changes, so does the estimated Phillips curve.

---

According to Sargent's theory, the Fed has reduced inflation because the trade-off between inflation and unemployment has recently been so "unfavorable" that the Fed has abstained from trying to lower unemployment.

---

trying to lower unemployment. However, as the economy is hit by new disturbances and the Phillips curve seems to change, this view will be revised, and inflation may well increase again.

---

The "Keynesian" view of economic policymaking is still very influential among economists and politicians around the world. Therefore the analysis in Sargent's book should be taken seriously.

---

Depending on our view of the reasoning of economic policy makers, we may thus either believe that the present situation with low inflation will endure, or that a process of rising inflation may well reappear. As we have indicated, Sargent's warnings may be more relevant for the U.S. than for Europe. The importance of explicit targets for inflation and a clear mandate for monetary policy has been more heavily emphasized in Europe (as in Australia, Canada and New Zealand) than in the United States. Nonetheless, the "Keynesian" view of economic policymaking is still very influential among economists and politicians around the world. Therefore the analysis in Sargent's book should be taken seriously. Hopefully, the summary published in this issue will contribute to the spreading of Sargent's ideas to a wider audience.

According to Sargent's theory, the Fed has reduced inflation, not because of a conviction that unemployment can not be affected, but rather because the trade-off between inflation and unemployment has recently been so "unfavorable" – a fall in unemployment is associated with a large increase in inflation – that the Fed has abstained from

It should be stressed that Sargent does not claim that his theory is the correct description of Federal Reserve behavior and that there has been no reorientation of U.S. monetary policy. Rather, his fundamental point is that both interpretations are consistent with economic theory, and both seem realistic.



## References

- Apel, Mikael and Staffan Viotti, "Why is an independent central bank a good idea?", *Quarterly Review* 2, 1998, Sveriges Riksbank, 5–32.
- Barro, Robert J. and David B. Gordon, "A positive theory of monetary policy in a natural rate model", *Journal of Political Economy* 91 (4), August 1983, 589–610.
- Ireland, Peter N., "Does the time-consistency problem explain the behavior of inflation in the United States?", *Journal of Monetary Economics* 44 (2), October 1999, 279–291.
- Kydland, Finn and Edward C. Prescott, "Rules rather than discretion: The inconsistency of optimal plans", *Journal of Political Economy* 85 (3), June 1977, 473–491.
- Rogoff, Kenneth, "The optimal degree of commitment to an intermediate monetary target", *Quarterly Journal of Economics* 100 (4), November 1985, 1169–1189.
- Sargent, Thomas J., *The conquest of American inflation*, Princeton University Press, 1999.
- Vredin, Anders and Anders Warne, "Unemployment and inflation regimes", Sveriges Riksbank Working Paper Series No. 107, May 2000.

# The conquest of American inflation: A summary

BY THOMAS J. SARGENT AND ULF SÖDERSTRÖM

*Sargent is Professor of Economics at Stanford University and Senior Fellow at the Hoover Institution in Stanford, California; Söderström is a visiting researcher at the Research Department of Sveriges Riksbank*

*This essay compares two different interpretations of postwar U.S. inflation. In both stories, the government learns a version of the natural unemployment rate hypothesis: in the first, the correct rational expectations version, in the second, an approximating adaptive expectations version. Although the first story is more popular among modern macroeconomists, it suffers from contradictions and loose ends. Therefore the second story is considered. This story, which captures important features of policy making at the Federal Reserve, is more successful than the first in explaining the rise and fall of American inflation.*

## The rise and fall of U.S. inflation

Figure 1 plots the annual rate of inflation in the U.S. since World War II. Inflation was low during the late 1950's and early 1960's, swept upward into the 1970's, and then fell abruptly with Chairman Paul Volcker's stabilization in the early 1980's. If we take for granted that inflation is under the control of the Federal Reserve, how can we explain these observations?

This essay evaluates two interpretations of the U.S. post-war inflation history based on policy makers' beliefs about the Phillips curve. In both stories, the Federal Reserve authorities learn the natural rate of unemployment theory from a combination of experience and a priori reasoning.<sup>1</sup> The stories differ in how the

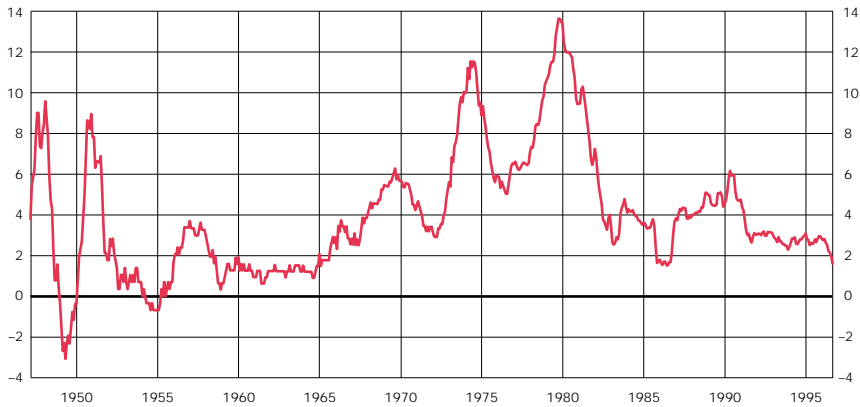
This is a summary of Sargent (1999), which in turn is based on the Marshall lectures at the University of Cambridge in October 1996 and the Nemmers inaugural lecture at the Northwestern University in May 1997. See also Cho and Sargent (1999) for formal proofs of the main arguments. Anders Vredin and Marianne Nessén have provided helpful comments on early drafts of this summary.

<sup>1</sup> The natural-rate theory was developed and refined by Phelps (1967), Friedman (1968), and Lucas (1972). It implies that the average rate of unemployment is determined by real forces, and not altered by permanent changes in the inflation rate.



Figure 1. U.S. post-war inflation

Monthly CPI inflation, 13-month centered moving average, percent



natural-rate theory is cast. In the first story, the government learns the correct rational expectations version of the theory, whereas in the second story, it learns an approximating adaptive version, adjusting its policy behavior as the economy develops over time. The first story will be called the *triumph of natural-*

---

This essay evaluates two interpretations of the U.S. post-war inflation history based on policy makers' beliefs about the Phillips curve. The first story will be called the *triumph of natural-rate theory* and the second one the *vindication of econometric policy evaluation*.

---

Figure 2a. Monthly unemployment rate and inflation

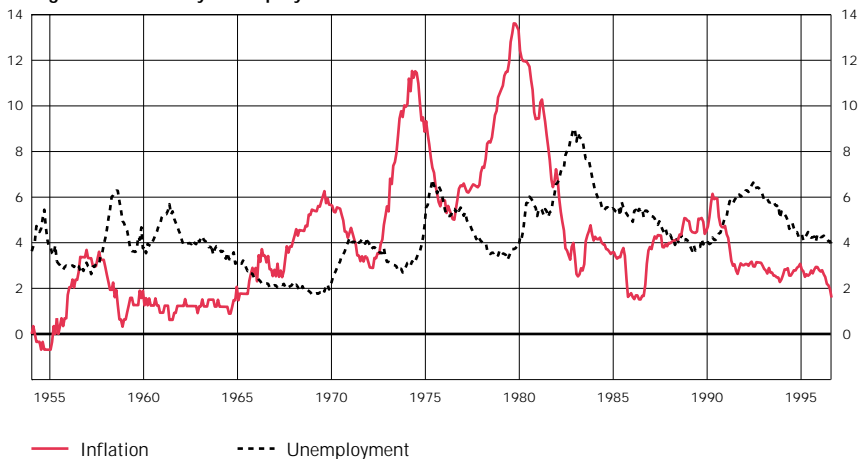


Figure 2b. Business cycle components of unemployment and inflation

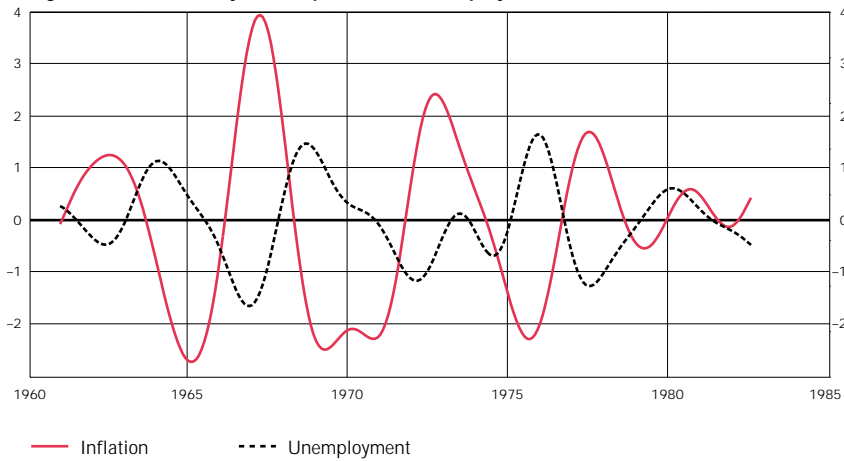
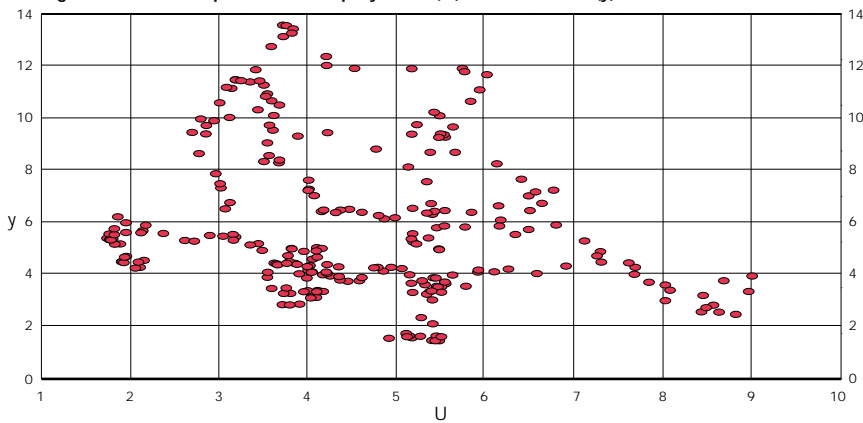


Figure 3a. Scatter plots of unemployment (U) and inflation (y) 1960–1982



Despite its disrepute within important academic and policymaking circles, the Phillips curve persists in U.S. data.

*rate theory* and the second one the *vindication of econometric policy evaluation*.

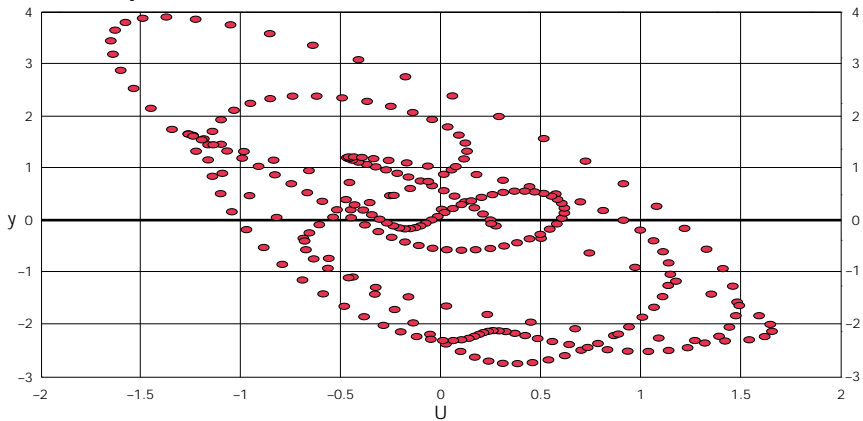
Despite its disrepute within important academic and policymaking circles, the Phillips curve persists in U.S. data. Figure 2a plots

the unemployment rate for white men over 20 years of age against the CPI inflation rate, and Figure 2b plots business cycle components of inflation and unemployment.<sup>2</sup> Likewise, Figure 3a plots monthly inflation against monthly unemployment for the 1960–82 subperiod, which interests us most, and Figure 3b plots the business cycle components of these two series. An examination of these figures

<sup>2</sup> These business cycle components have been calculated using methods described by Baxter and King (1999).



Figure 3b. Scatter plots of business cycle components of unemployment (U) and inflation (y) 1960–1982



allows the eye to spot an inverse relationship between inflation and unemployment at business-cycle frequencies – a Phillips curve.

### “THE TRIUMPH OF NATURAL-RATE THEORY”


The first story that explains the inflation history of the U.S. builds on work by Kydland and Prescott (1977) and Barro and Gordon (1983). Adherence to the gold standard and then to the rules of Bretton Woods gave the U.S. low inflation and low expectations of inflation. In 1960, Paul Samuelson and Robert Solow found a Phillips curve in the U.S. time series for inflation and unemployment (Samuelson and Solow, 1960). They argued that the negative relationship between inflation and unemployment was exploitable and suggested raising inflation to reduce unemployment. Soon, their recommendation was endorsed by many macroeconomists and implemented by policy makers. To everyone’s dismay, over time the Phillips curve shifted adversely: inflation rose, but unemployment on average did not fall.

In the meantime, the concept of the natural rate of unemployment was created and refined. This theory, which assigns a central role to people’s expectations about inflation in locating the Phillips curve, allowed only a temporary trade-off between inflation and unemployment and could explain the observed adverse shifts in the Phillips curve. As inflation rose, unemployment would be

---

The concept of the natural rate of unemployment allowed only a temporary trade-off between inflation and unemployment and could explain the observed adverse shifts in the Phillips curve.

---



temporarily reduced. Eventually, however, as the public adjusted its expectations to the new level of inflation, unemployment would move back towards the natural rate. The rational expectations version of the theory meant that policy makers should ignore any temporary Phillips curve trade-off and strive only for low inflation. These ideas spread among academics, then influenced policy makers, and ultimately promoted the lower inflation rates of the 1980's and 1990's. Thus, events were shaped by policy makers' beliefs – some false, others true – and the actions those beliefs inspired.

### “THE VINDICATION OF ECONOMETRIC POLICY EVALUATION”

The alternative interpretation ascribes Volcker's conquest of inflation in the 1980's partly to the success of the econometric and policymaking procedures that Robert Lucas challenged in his famous Critique.<sup>3</sup> This story also assumes that the data conformed to the natural-rate hypothesis, whether or not the policy makers realized it. Policy makers accepted the Phillips curve as an exploitable trade-off; they also adopted their methods for learning from data and for deducing policy recommendations (in the way criticized by Lucas). Recurrently, they re-estimated the Phillips curve and used it to reset the inflation and unemployment targets, ignoring the effects of inflation expectations on the Phillips curve. That method revealed a shifting Phillips curve, which, when interpreted mechanically, led policy makers to pursue lower inflation.

---

The vindication story describes the post-war history of U.S. inflation in terms of an adaptive theory of policy.

---

To complete the vindication story, this essay describes the post-war history of U.S. inflation in terms of an adaptive theory of policy.

The theory originates with a minimal departure from rational expectations and accounts for features of the data that rational expectations theory misses. Although the rational expectations revolution of the 1970's left adaptive expectations outmoded, the story recalls adaptive expectations in a modern form, incorporating forecasting functions like those in rational expectations models but with coefficients that adapt to fit recent data. Thus, adaptive expectations play an essential role in generating the inflation observations and in improving theoretical outcomes, making them fit more closely to the observed history.

<sup>3</sup> Lucas (1976) used Samuelson and Solow's method for deducing policy recommendation from a statistical Phillips curve as an example of erroneous methodology. He concluded that since agents' behavior varies with changes in the government's policy rules, "...comparisons of alternative policy rules using current macroeconomic models are invalid regardless of the performance of these models over the sample period or in ex ante short-term forecasting" (p. 41).





This interpretation accounts for the post-war inflation in terms of an adaptive government adjusting its naive view of a Phillips curve in the light of recent evidence, a procedure that makes the government's inflation policy change over time. The account of the inflation process denies that

---

Although the vindication story backs away slightly from rational expectations, it imposes more restrictions on government policy than does the triumph of the natural-rate story.

---

inflation policy is conducted in a vacuum or occurs as a natural experiment, as in the Lucas (1972, 1976) model where policy is exogenous. Instead, it asserts that inflation policy emerges gradually from an adaptive process. This story is more attractive than the triumph of the natural-rate story, since that story has contradictions, loose ends, and elements of adaptation. At the same time, although the vindication story backs away slightly from rational expectations, it imposes more restrictions on government policy than does the triumph of the natural-rate story, since policy, instead of being set exogenously, depends on the behavior of the economy.

### READER'S GUIDE

The outline of this essay is as follows. First, the Lucas Critique is reviewed and modified, to set the stage for the adaptive models in the rest of the essay. The following section describes rational expectations models and the literature on the credibility problem of monetary policy. Using the basic model of Kydland and Prescott (1977), it is shown how attempts to exploit the temporary Phillips curve trade-off can lead to higher inflation, with no gains in terms of unemployment.


The remainder of the essay explores alternative modifications of the basic model that might produce the observed history. We start our departure away from rational expectations by returning to the origin of the natural-rate hypothesis in the 1950's and

---

The idea that the government and private agents learn about the Phillips curve by observing past data provides the basis for our vindication of econometric policy evaluation.

---

1960's. That model is then modified to include misspecification, showing that if agents have only a slightly mistaken view of the Phillips curve, this can substantially influence the outcomes of inflation and unemployment. Then the concept of self-confirming equilibria is introduced. In such an equilibrium, the government's beliefs about the Phillips curve affect its policy choices, which in turn makes agents act in such a way that the government's beliefs are confirmed. Although these equilibria are not sufficient to generate lower inflation than in the previous rational expectations model, the idea that the government and private



agents learn about the Phillips curve by observing past data provides the basis for our vindication of econometric policy evaluation.

## Ignoring the Lucas Critique

This essay resurrects econometric and policy evaluation procedures that were strongly criticized by Lucas (1976). It emphasizes a neglected aspect of Lucas's Critique: drifting coefficients. In the adaptive models presented here, the government ignores the Critique and its implications for the government's econometric and policy procedures. Instead, these procedures make coefficients in the Phillips curve change over time, which in turn affects outcomes.

The procedures of policy evaluation using econometric models in the tradition of Tinbergen (1952) and Theil (1961) assume that private agents' behavior rules are fixed while the government considers variations of its policy rule. Lucas noted that if private agents solve intertemporal optimization problems, then their actions depend on the government's policy rule: if the policy rule is changed, agents will adjust their behavior. Because the Tinbergen-Theil formulation misses this dependence, it will not give reliable policy advice.

Lucas wrote the Critique when Keynesian macroeconomic models were highly regarded as tools for quantitative policy evaluation. He stressed that the methods used in econometric forecasting contradicted the assumption that agents' behavior rules were fixed. Instead, the coefficients in important forecasting equations were frequently adjusted. His interpretation of those adjustments was that the models were typically only approximations of the economy, with the relationships changing over time, that is, with drifting coefficients.

However, Lucas left the drift in coefficients unexplained. Neither the macroeconomic theory nor the rational expectations econometrics constructed after Lucas's Critique explains such drift. Each of these traditions focused on environments with fixed behavior. Yet coefficients continue to drift for macroeconomic models. Although the econometric forecasting literature has taken coefficient drift increasingly seriously, it typically offers no economic explanation of parameter drift.

---

Our interpretation of the U.S. inflation history starts with parameter drift, treating it as a smoking gun.

---

Our interpretation of the U.S. inflation history starts with parameter drift, treating it as a smoking gun. It is the key piece of evidence that the government's beliefs about the economy and therefore its policy toward inflation

have evolved over time. In the model, government decisions are made in the Tinbergen-Theil tradition. However, the government's econometric procedures



include drifting coefficients: as the economy develops, the government re-estimates the Phillips curve, leading to new coefficients, which are used as inputs in its policy decision. The exercise is constrained by assuming that a rational expectations version of the natural-rate hypothesis is true (although policy makers are not aware of it).

Focusing on the government's learning behavior raises an issue discussed in the wake of Lucas's Critique. If the fundamental factors of the environment are stable over time, the government's econometric estimates and its decision rule will eventually converge. In the limit, the economy can reach a self-confirming equilibrium, where the government's estimates of its econometric model are reinforced jointly by its own behavior and the private sector's reaction to it.

---

In a self-confirming equilibrium the government's estimates of its econometric model are reinforced jointly by its own behavior and the private sector's reaction to it.

---

Within such an equilibrium, the relevance of some aspects of the Lucas Critique disappear. First, although the assumption that private agents' decision rules are independent of the government's behavior is incorrect, the government will not be disappointed in the outcomes (as suggested by Lucas), since its beliefs are confirmed.

Second, in addition to imposing rational expectations for private agents, a self-confirming equilibrium restricts the government's econometric model and its behavior. It is an equilibrium where agents have rational expectations, but one with fewer parameters than those in the models of Lucas (1972, 1976), which had parameters describing government policy.


Third, since a self-confirming equilibrium does not admit regime changes and drifting coefficients, but we observe these in practice, convergence to such an equilibrium must be resisted through some mechanisms. Assuming that the government suspects that the environment is unstable (although in fact it is not), and therefore uses a learning rule that discounts past observations, weakens the tendency of the economy to converge to a self-confirming equilibrium. This makes regime shifts possible.

Ironically, the procedures that violate the Lucas Critique yield better outcomes than ones that respect it. If the government discounts past observations when estimating the Phillips curve, temporary disturbances may change the government's estimates, leading it to lower the rate of inflation. Thus the government's adaptive model can lead to better outcomes than under rational expectations.

---

The procedures that violate the Lucas Critique yield better outcomes than ones that respect it.

---



To expand on this point, the next section reviews the kinds of models and procedures that respect the Critique. To summarize important developments in macroeconomic thinking from the 1980's and early 1990's, the concept of Nash equilibrium is applied to a model with a natural unemployment rate. These rational expectations models respect the Lucas Critique. Models that challenge and extend the Critique appear later.

## The credibility problem

This section first describes the basic one-period expectational Phillips curve model, modifications of which underlie both story lines. Then a version of this model is presented where the government also cares about the future, so its reputation in sustaining low inflation becomes important. The model formalizes the temptation to inflate unleashed by the discovery of the Phillips curve and the value of a commitment technology for resisting that temptation. It also shows that reputational mechanisms are not very successful as substitutes for the possibility to make a commitment.

### A SIMPLE MODEL

We first describe a version of the one-period model of Kydland and Prescott (1977).<sup>4</sup> A government decides the inflation rate, and private agents set their inflation expectations. The unemployment rate is assumed to deviate from the “natural” unemployment rate only if the actual inflation rate deviates from the expected rate; if there is surprise inflation, the unemployment rate is lower than the natural rate. The government's preferences are specified such that it would prefer to set both inflation and unemployment at zero, although the natural rate of unemployment is positive. Finally, we assume that private agents have rational expectations, so they understand the government's motivations, and on average set their inflation expectations equal to the actual inflation rate.

---

The inflation outcome depends crucially on whether the government takes into account the fact that its rule for the inflation rate will affect private agents' inflation expectations or not.

---

Note first that rational expectations imply that the unemployment rate cannot deviate from the natural rate in the long run, since private agents understand what inflation rate the government will choose, and adjust their expectations accordingly. The inflation outcome of this model then depends crucially

<sup>4</sup> See the Appendix for a simple formal presentation.



on whether the government takes into account the fact that its rule for the inflation rate will affect private agents' inflation expectations or not.

First assume that the central bank does not take the effects of its policy rule on inflation expectations into account, but instead takes the expected inflation rate as given. Then the government wants to lower the un-

---

The *Nash outcome* is characterized by a positive inflation rate, but unemployment equal to the natural rate.

---

employment rate below the natural rate by setting actual inflation above the expected inflation rate, creating surprise inflation. However, since agents have rational expectations, they will see through the government's incentives, and set the expected rate of inflation equal to the actual rate. The equilibrium is reached at the level of inflation where the government has no incentives to change the inflation rate and private agents' expectations are fulfilled. This *Nash outcome* is characterized by a positive inflation rate, but unemployment equal to the natural rate.<sup>5</sup>

If instead the government takes the effects on inflation expectations into account when setting the inflation rate, it realizes that the expected rate of inflation is equal to the actual rate in equilibrium, and that the unemployment rate cannot deviate from the

---

If the government realizes that the unemployment rate cannot deviate from the natural rate in the long run, the optimal rate of inflation is zero, leading to the *Ramsey outcome*.

---

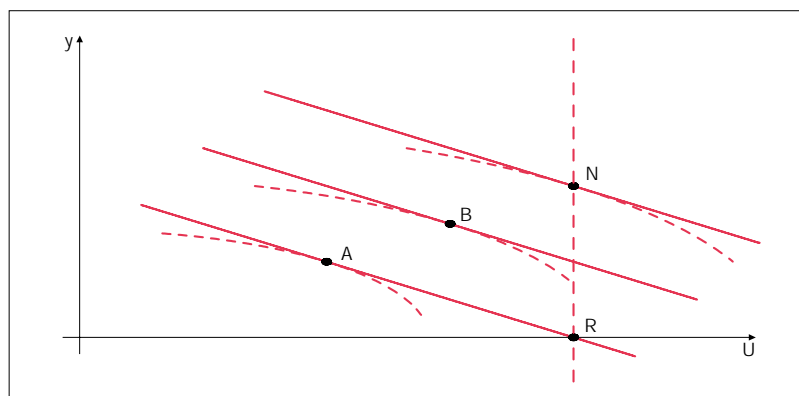
natural rate in the long run. Then the optimal rate of inflation is zero, leading to the *Ramsey outcome* of zero inflation and unemployment equal to the natural rate.<sup>6</sup>

Figure 4 shows a graphical representation of the Kydland-Prescott model, where inflation ( $\pi$ ) is measured along the vertical axis and unemployment ( $U$ ) along the horizontal axis. The straight solid lines are a family of short-run Phillips curves, each associated with a different level of inflation expectations (higher expected inflation leads to an upwards shift of the short-run Phillips curve). In the long run, when inflation expectations are correct, the Phillips curve is vertical (the dashed line), positioned where unemployment is equal to the natural rate. The curved dashed lines are indifference curves for the government, that is, combinations of inflation and unemployment that yield the same level of utility. The fur-

<sup>5</sup> In game theoretic terms, a pair of strategies is a *Nash equilibrium* if A's choice is optimal given B's choice and vice versa. Then neither player has any incentives to change his strategy. See, for example, Varian (1987, ch. 27). The equilibrium outcome in the Kydland-Prescott model is referred to as "Nash" since the public's expectations are fulfilled and the government has no reason to change its policy choice.

<sup>6</sup> This outcome is termed "Ramsey" since it is the outcome that would be chosen by a central planner maximizing social welfare. This problem, although in the context of consumption and investment decisions, was first analyzed by Ramsey (1928).

Figure 4. Nash and Ramsey outcomes in the Kydland-Prescott model



ther out from the origin (the government's preferred outcome) is the indifference curve, the lower is the government's utility.

Suppose first that inflation expectations are zero, so the short-run Phillips curve is given by the lowest solid line. Given this Phillips curve, the government chooses the combination of inflation and unemployment that maximizes its utility, leading to point *A*, where the Phillips curve is a tangent to one of the government's indifference curves.

At *A*, however, the public's expectations are not fulfilled (it expected zero inflation, but the government set a positive rate of inflation). Therefore *A* cannot be a rational expectations equilibrium. If the public had expected higher inflation, the short-run Phillips curve would have shifted upwards, leading the government to choose a higher rate of inflation (for example at *B*). The only Nash equilibrium in this model is given by the point *N*, where the public's expectations are fulfilled, and the government maximizes its utility, given the short-run Phillips curve. At this equilibrium, since inflation is equal to expected inflation, unemployment is equal to the natural rate. Thus, the Nash equilibrium is situated along the vertical long-run Phillips curve.

Given this long-run Phillips relationship, the government would have preferred to set inflation to zero, reaching the Ramsey outcome *R*. It is the inability to commit to this solution, and abstain from the short-run gains of lowering unemployment, that leads to the Nash outcome.<sup>7</sup> This outcome is clearly worse for the government than the Ramsey outcome, since it has higher inflation but

<sup>7</sup> Note that the assumption that the government aims for unemployment lower than the natural rate is crucial for these results. If the government's target for the unemployment rate coincides with the natural rate, it chooses the Ramsey outcome directly, and has no reason to exploit the Phillips curve trade-off.



the same rate of unemployment. The addition of a constraint to the government's problem in the Ramsey plan makes the government achieve better outcomes by taking into account how its actions affect the public's expectations. This is how Kydland and Prescott (1977) reached the pessimistic con-

clusion that a benevolent and knowledgeable government would set inflation too high because it makes decisions sequentially, not once-and-for-all, and cannot commit to keeping inflation low.<sup>8</sup>

The Nash outcome does not depend crucially on the assumption that the public's expectations are fully rational. If instead it forms its expectations adaptively, depending on the past inflation rate, one can imagine a dynamic version of the model. The government sets the inflation optimally given the public's expectations. In the next period, the public observes the inflation rate and updates its expectations, and the government resets inflation at a new level, after which the public's expectations are changed, etc. This leads to a process that eventually converges to the Nash outcome, where the private sector's expectations are realized, and the government sets the inflation rate optimally, given the expected rate of inflation. The speed of convergence is determined by the public's rate of learning, or updating of expectations. The more important is the most recent observation of inflation (the faster agents learn), the faster is convergence to the Nash outcome.

Thus, both in its simplest form and in more general forms, the Kydland-Prescott model leads to a pessimistic conclusion: unless the government somehow can commit not to try to lower unemployment by creating surprise inflation, the average inflation rate will be higher, but with no gains in terms of unemployment.

This model can thus explain why inflation increased in the late 1960's and early 1970's after the Phillips curve trade-off was discovered. To explain the stabilization of inflation in the early 1980's, however, we

must accept that the government eventually learned the natural rate hypothesis, and abstained from trying to lower unemployment. But the lesson from Kydland and Prescott (1977) is that the government must find a commitment mechanism to do so. Since such mechanisms are rarely seen in practice, this simple story of

---

A benevolent and knowledgeable government would set inflation too high because it makes decisions sequentially, not once-and-for-all, and cannot commit to keeping inflation.


---

---

This model can thus explain why inflation increased in the late 1960's and early 1970's after the Phillips curve trade-off was discovered.

---

<sup>8</sup> The Nash equilibrium can be seen as a setup where the government chooses after the private sector sets its expectations. In the Ramsey equilibrium, on the other hand, the government chooses first, knowing that its decisions affect the private sector's expectations.



the conquest of inflation is not all that attractive. We will therefore search for other types of explanations.

### REPUTATIONAL MECHANISMS

In the simple Kydland-Prescott model, the government acts as if there is only one period, or it forgets that the economy lasts for more than one period. However, better outcomes can occur if the government plans for the future. When the economy lasts for several periods, the reputation of the government is important: by setting inflation lower than is optimal in the one-period model, it affects inflation expectations in the future, which can lead to better outcomes.

If the game between the government and the private sector is repeated indefinitely, Barro and Gordon (1983) have shown that better outcomes can be sustained if the government cares sufficiently about the future. This is because the gains from repeating the Ramsey outcome indefinitely may exceed the gains from fooling the private sector once by setting the optimal inflation rate in one period and then always repeating the Nash outcome.

---

Even if reputational forces are important, they provide a weak foundation for anti-inflation policy.

---

It is a well-known result from game theory, however, that such a situation has many equilibria, some better and some worse than the Nash outcome. Even if reputational forces are important, they therefore provide a weak foundation for anti-inflation policy. This essay now explores a different route, beginning with the notion that the multiplicity of equilibria stems from the rationality assigned to all participants in the system. To eradicate multiplicity, we will retreat from perfection and move to models in which some people have a more limited understanding of the economy.

### Adaptive expectations (1950's)

---

The government sets inflation optimally, given its information about the economy and the public's expectations.

---

In 1967, Edmund Phelps formulated a theory of the natural-rate model based on the premise that the government sets inflation optimally, given its information about the economy and the public's expectations. He dropped rationality for the public, but not for the government, and assigned the public a particular mechanical forecasting rule known to the government: the public is assumed to form their inflation expectations as a weighted average of past observed inflation rates. This mechanism implies that as inflation moves around, the public's inflation expectations are not fulfilled, but if the government





sets the inflation rate at the same level in every period, the public's expectations will eventually come close to the actual inflation rate. In formal terms, the expectation mechanism is characterized by an "induction property".

The government uses an empirical Phillips curve to compute an optimal policy rule for inflation, and is assumed to maximize a similar payoff function as before, except that it now covers the entire future. If the government does not discount the future (that is, it cares as much about the future as about today), it will eventually set inflation to zero, whereby the economy converges to the Ramsey outcome. How fast the economy converges depends on the rate at which the public updates its expectations, and although the inflation expectations are incorrect along the transition path, they are eventually correct. This is because of the induction property, which plays an important role in this model. In the more sophisticated models to be examined below, the rate of updating – or learning – is determined within the model (along with other aspects of behavior), but the induction property will still have a beneficial effect on the outcome.

The induction property has also been important in the empirical testing of the natural-rate hypothesis. There are two different interpretations of the Phillips curve: according to a Keynesian view, inflation is determined by the rate of unemployment, whereas a classical interpretation sees the relation in the opposite direction, from inflation to unemployment. In a traditional Keynesian Phillips curve, therefore, the current inflation rate depends on the expected rate of inflation and the unemployment rate. If inflation expectations are determined as in the Phelps model, as an average of past inflation rates, the induction property implies that the coefficients on lagged inflation in an estimated Phillips curve sum to unity. In the classical Phillips curve, on the other hand, where unemployment depends on the expected and actual inflation rates, the coefficients on current and lagged inflation sum to zero.<sup>9</sup> The induction hypothesis thus restricts the weights on lagged inflation in both versions of the Phillips curve.

Solow (1968) and Tobin (1968) proposed an empirical test of the natural-rate hypothesis by estimating the Keynesian Phillips curve and testing whether the sum of the coefficients on lagged inflation were equal to unity

or not. They interpreted a finding of a sum of coefficients below unity as indicating a long-run trade-off between inflation and unemployment, a trade-off that could be exploited by the government. If, on the other hand, the sum of coeffi-

---

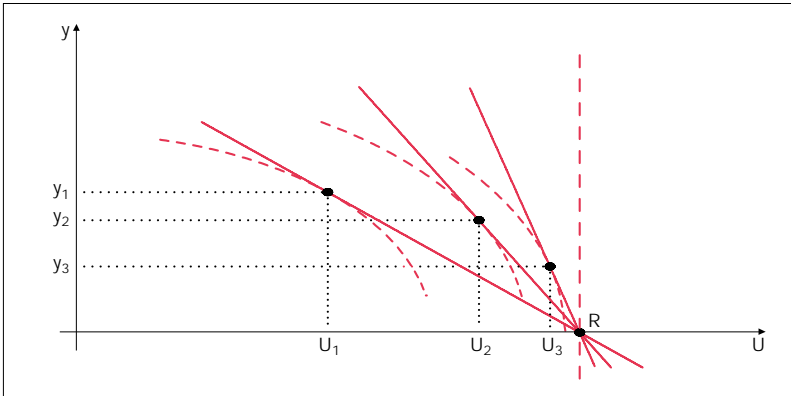
When the empirical Phillips curve fulfills the induction hypothesis, the Phelps problem recommends lower inflation rates than when it doesn't.

---

<sup>9</sup> See the Appendix for more details.

cients were equal to unity, the natural-rate would be supported, and there would be no trade-off to exploit. Thus, when the empirical Phillips curve fulfills the induction hypothesis, the Phelps problem recommends lower inflation rates than when it doesn't, since there is no trade-off between inflation and unemployment. This econometric test will turn out to play an important role in the complete model below.

Figure 5. Optimal inflation with differently sloped Phillips curves



As the estimated Phillips curve moves around over time, so does the government's optimal rate of inflation.

In terms of the graphical representation of the Kydland-Prescott model, Figure 5 shows how the optimal inflation rate depends on the slope of the short-run Phillips curve. The steeper the Phillips curve, the lower is the inflation rate chosen by the government. This is because the trade-off between inflation and unemployment is less favorable, so to achieve a given decrease in unemployment, a larger increase in inflation is needed. In the extreme case when the short-run Phillips curve is vertical, the government does not identify any trade-off, so it sets inflation at the Ramsey outcome. Thus, as the estimated Phillips curve moves around over time, so does the government's optimal rate of inflation.

These results point us in one possible direction. What we are aiming at is a model that can explain why the government's estimates of the Phillips curve have shifted over time. If we can find such a model, we might be able to explain both the acceleration and the stabilization of inflation in the U.S.



## Self-confirming equilibria

This section takes up the quest for models that depart minimally from the basic Kydland-Prescott model, but that also can replicate a 1960's acceleration of inflation followed by a Volcker stabilization in the early 1980's. Ideas from two literatures are combined to build a model with imperfect rational expectations that lead to equilibria where the government's view of the Phillips curve shifts over time. Similar models were initially constructed in the 1970's and 1980's in response to Lucas's Critique.

---

Ideas from two literatures are combined to build a model with imperfect rational expectations that lead to equilibria where the government's view of the Phillips curve shifts over time.

---

Assuming that expectations are adaptive, given by an average of past observations, if agents learn in a particular way (weighting all observations equally), we have seen how the Kydland-Prescott model predicts that the economy eventually converges to the same equilibrium as if expectations had been fully rational. However, if agents instead choose to discount past observations and weight new observations more heavily, this convergence can be arrested. Instead of converging to a constant rate of inflation, inflation expectations may converge to a process that moves around over time. In such a situation, if agents' beliefs are slightly wrong, although they learn in an optimal way, the outcome can be substantially different than in the rational expectations model. It will be argued that this is a plausible story about the U.S. inflation experience.

---

If agents' beliefs are slightly wrong, the outcome can be substantially different than in the rational expectations model.

---

### SELF-CONFIRMATION UNDER DIFFERENT DIRECTIONS OF FIT

The story draws first on a literature that verifies the persistence of the Phillips curve in post-war U.S. data. King and Watson (1994) carefully document how an estimated Phillips curve is consistent with very different behavior of the economy over time, depending on the direction one estimates the Phillips curve: whether one regresses unemployment on inflation (as in the classical model) or inflation on unemployment (as in the Keynesian model). This implies that even if one can reach agreement about the existence and the slope of the Phillips curve, one may draw very different conclusions depending on one's interpretation of the curve.

The issues raised by King and Watson will be considered in the context of another literature that is concerned with different learning mechanisms when agents do not have the right model in mind, but use information in a rational

In a *self-confirming equilibrium* the government uses the wrong model of the economy, but fits its model to match the data as well as possible.

as well as possible. Two examples are described which differ in the direction that the government estimates the Phillips curve: the government either makes a Keynesian or a classical interpretation. Because the government's beliefs affect its behavior, the direction of estimation affects the outcomes of the model. All along, it is assumed that the government overlooks the econometric details, sees the Phillips curve as an exploitable relationship, and sets the inflation rate in the way assumed by Phelps. The true model is assumed to be given by the classical Phillips curve, but the government uses a misspecified econometric model, irrespective of whether it makes a Keynesian or a classical interpretation. In particular, when estimating the Phillips curve, it ignores the fact that changes in inflation expectations shift the curve up or down. These assumptions about how the government analyzes the economy do not seem entirely unrealistic.

Under the classical direction of fit, when the government regresses unemployment on inflation, the average outcome is equal to the Nash equilibrium of the simple Kydland-Prescott model. Under the Keynesian direction of fit, regressing inflation on unemployment, the estimated Phillips curve is flatter, so the government believes the trade-off is more favorable. As a consequence, it sets inflation higher on average (see Figure 5). This reflects the fact that the classical identification is closer to the model assumed to be true. The Keynesian identification scheme gives the government the mistaken interpretation of the relationship between inflation and unemployment, and that worsens the outcome.

Each of these self-confirming equilibria gives a mean outcome worse than the Ramsey outcome.

However, each of these self-confirming equilibria gives a mean outcome worse than the Ramsey outcome. What fails here is the induction property: since the sum of coefficients on lagged inflation are not restricted to unity, the government identifies a trade-off between inflation and unemployment that it wants to exploit (although the size of the trade-off varies between the different interpretations). As a consequence, although inflation differs depending on the government's interpretation of the Phillips curve, inflation is always higher than in the Ramsey outcome.



## EQUILIBRIUM WITH MISSPECIFIED BELIEFS

To explore how imputing a different wrong model might improve upon the Nash outcome, suppose instead that the public, not the government, makes a subtle specification error. The government solves the problem considered by Phelps, leading to a feedback

---

Together, the government's optimal policy rule and the public's optimal rate of learning imply that both the true and the misspecified models can be reached as an equilibrium.

---

rule for inflation as a function of the public's expectations. The public does not have rational expectations, but forms its expectations adaptively, so its inflation expectations are given by past inflation. However, it sets its rate of updating to fit the observed data.<sup>10</sup> Together, the government's optimal policy rule and the public's optimal rate of learning imply that both the true and the misspecified models can be reached as an equilibrium.

Simulations of this model show that it would take many observations for the people living in the economy to detect that their model is wrong. Nevertheless, the implied average inflation rate is substantially lower than the Nash outcome, and the more the government cares about the future, the closer the average inflation rate gets to the Ramsey outcome of zero inflation. This improved outcome is delivered by the induction hypothesis incorporated in the adaptive expectations scheme – together with a government that cares about the future. Because the rate of learning is an outcome of the model, instead of being set exogenously as assumed in Phelps's model with adaptive expectations, the present model is a more realistic description of the workings of the induction hypothesis in this economy.

These results give some grounds for optimism: after disappointments from our self-confirming equilibria, which lead to the same inflation rate as in the Nash outcome,

---

There is a nearly self-confirming model with much better outcomes than the Nash outcome.

---

the equilibrium with forecast misspecification does support better outcomes. The equilibrium we reach embodies a type of self-confirmation, but with agents using the wrong model. This shows that there is a nearly self-confirming model with much better outcomes than the Nash outcome. If we can combine this adaptive learning model with the type of self-confirming model we used in the previous section, we might end up with a model that can explain the conquest of American inflation. This is what we shall try to do next.

<sup>10</sup> In essence, the public chooses the rate of updating to minimize the error when forecasting inflation, given the government's behavior.



## Adaptive expectations (1990's)

This section modifies our self-confirming models to attain an adaptive version and studies whether these models converge to self-confirming equilibria. Now knowledge of the exact model is withheld from all agents – the government as well as the public – and they are required to learn by updating their estimated regressions as time passes. The government sets the inflation rate at the recommendation that comes out of its optimization problem, given the current estimate of the Phillips curve.

---

If we make the agents discount past observations, new outcomes can emerge. Agents' discounting of past observations can sustain paths that look like Volcker terminating inflation in the early 1980's.

---

Starting from the self-confirming equilibrium models of the previous section, we in effect alter the rate at which past observations are discounted in agents' learning process. If the rate is set to implement "least squares learning", so all observations are weighted equally, we eventually get nothing new from these

models, because they typically converge to self-confirming equilibria with the Nash outcome. However, if we make the agents discount past observations, so more recent observations are weighted more heavily than older ones, new outcomes can emerge.<sup>11</sup> Agents' discounting of past observations arrests convergence to a self-confirming equilibrium and can sustain paths that look like Volcker terminating inflation in the early 1980's. Empirically, discounting is not entirely unreasonable, rather, it is a good idea to weight recent observations more heavily than past ones when one believes that the Phillips curve wanders around over time.

The main purpose is to study outcomes that emerge when the government is using a learning algorithm that impedes convergence to a self-confirming equilibrium. We are as interested in movements away from a self-confirming equilibrium as in those toward one.

In the type of self-confirming equilibria considered earlier, the government solves its optimization problem only once, at the equilibrium values of its perceived Phillips curve. It then implements the recommendations of this unique policy rule in every period as time passes. In contrast, the government is now assumed to continuously adapt to new information about the Phillips curve, and solve a new problem in every period. As a consequence, its policy rule for inflation will vary over time, depending on its latest estimates of the Phillips curve.

The learning algorithm that discounts past observations arrests the force for

<sup>11</sup> See the Appendix for details on the learning mechanisms used.



convergence to a self-confirming equilibrium, both under the classical and under the Keynesian identification of the Phillips curve. This opens the possibility that the model will produce different outcomes than the Nash outcome. This issue is explored using computer simulations.

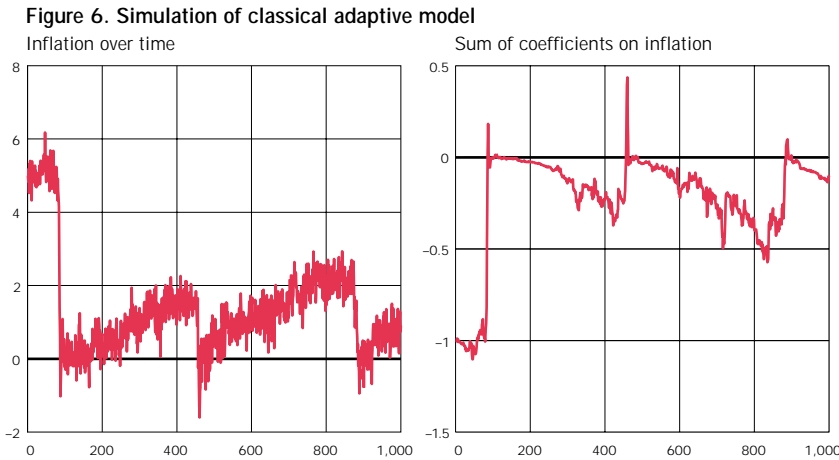


Figure 6 shows the results after simulating the classical model for 1,000 periods: the first panel shows the path of inflation over time, and the second panel shows the sum of coefficients on inflation in the government's estimated Phillips curve. In the first panel, inflation starts near the self-confirming Nash equilibrium value (which has inflation equal to 5 percent), but then drops almost to zero and stays there for a long time. Over time, inflation slowly heads back toward the self-confirming value, only to be propelled back toward zero again. Hence, the dynamics that pull the system toward the self-confirming equilibrium (the government's attempts to exploit the Phillips curve trade-off) are opposed by a recurrent force (learning about the natural rate) that sends the inflation rate close to the Ramsey outcome of zero inflation.

---

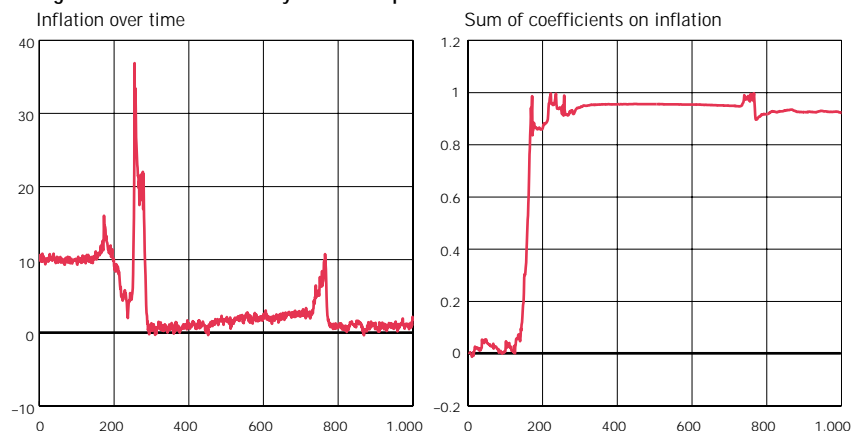
The dynamics that pull the system toward the self-confirming equilibrium are opposed by a recurrent force that sends the inflation rate close to the Ramsey outcome of zero inflation.

---

In the second panel of Figure 6, we see that during the first dramatic stabilization episode, the sum of coefficients on current and lagged inflation in the government's estimate of the classical Phillips curve jumps from its self-confirming value of  $-1$  to nearly zero. In the classical model, a value near zero of the sum of coefficients on inflation activates the induction hypothesis and makes the

government reduce inflation, since it cannot find evidence for a Phillips curve trade-off. This makes the government more open to interpreting the data as consistent with the natural-rate hypothesis. After the stabilization begins, the government's behavior generates a series of observations that affirm the induction hypothesis. Evidently, the stabilization generates observations that temporarily add credibility to the induction hypothesis that prompted it. Our earlier analysis shows that this situation is not self-confirming in the technical sense. Nevertheless, it is reinforcing, due to the government's changing behavior in response to the new observations.

**Figure 7. Simulation of Keynesian adaptive model**



Under the Keynesian identification in Figure 7, the story is much like that for the classical identification scheme. The early part of the sample has inflation near the self-confirming value of 10 percent.<sup>12</sup> But the data from this period foster growing doubt about the location of the Phillips curve and put higher weight in the direction of the induction hypothesis, which manifests itself when the sum of the weights on lagged inflation equals one (see the second panel). Eventually, by chance (through shocks to the economy) some observations arrive that push the government's estimated Phillips curve toward the induction hypothesis. As the government solves the Phelps problem, it induces a stabilization, and the inflation rate settles below the Nash outcome of 10 percent.

Apparently, there is a mechanism that drives the economy away from the Nash outcome. The economy starts out at the Nash outcome (such as point *N* in

<sup>12</sup> As before, when the government uses the Keynesian interpretation of the Phillips curve, the Nash inflation rate is higher, since it interprets the relationship between inflation and unemployment in the wrong direction. (Recall that the classical interpretation is assumed to be true.)





Figure 4). At the same time, the economy is constantly hit by shocks to the unemployment rate. If, by chance, some of these shocks make the government's estimate of the slope of the Phillips curve steeper (remember that these new observations are weighted more heavily than past observations supporting the flatter Phillips curve), it will set the inflation rate lower than before (see Figure 5). But as the government sets inflation lower, the new observations created by the altered policy rule makes the next estimate of the Phillips curve even steeper, so inflation is set even lower. Eventually, we might reach the point where the government believes the Phillips curve is vertical, so there is no trade-off between inflation and unemployment, and it sets inflation equal to the Ramsey outcome (at  $R$  in Figures 4 and 5). The government's continuous updating of its estimated Phillips curve in combination with some initial favorable shocks have thus made it possible to escape from the Nash outcome and reach the optimal Ramsey outcome.

---

Apparently, there is a mechanism that drives the economy away from the Nash outcome.

---


However, even though inflation in both models settles close to the Ramsey outcome, this is not a stable equilibrium. Since the true model has a short-run trade-off in the Phillips curve, the government soon identifies it, after a sufficient number of new observations have arrived. It then wants to exploit the trade-off and set inflation higher to lower unemployment. As a consequence, the economy moves toward the Nash outcome again. If it eventually reaches the Nash outcome, the government gets caught in an “experimentation trap”: if inflation expectations would vary sufficiently, the government would understand the natural-rate hypothesis and choose a lower inflation rate. But at the Nash outcome, inflation expectations are constant, since the government sets a constant inflation rate. Thus, for the government to start learning its version of the natural-rate hypothesis, the economy must be hit by shocks, which initiates the reinforcing dynamics towards the Ramsey outcome.

Consequently, the simulations have shown that for long periods, adaptive governments can learn to generate better than Nash or self-confirming outcomes. These results come from the recurrent dynamics induced by adaptation. The dynamics that drive the system toward a self-confirming equilibrium continue to operate under adaptation, but shocks let the adaptive system recurrently escape from a self-confirming equilibrium. Starting from a self-confirming equilibrium, an adaptive learning algorithm gradually makes the govern-

---

For long periods, adaptive governments can learn to generate better than Nash or self-confirming outcomes.

---



ment put enough weight on the induction hypothesis that eventually promotes better than Nash outcomes.

The learning mechanism used by agents is also a crucial ingredient in the model. If agents learn using the least squares learning algorithm that weights all observations equally, the model always converges to the inferior self-confirming Nash equilibrium. But if agents suspect the environment is changing, and therefore discount past observations when updating their expectations, better outcomes are possible. If, starting out from the Nash outcome, shocks hitting the model make the government decrease inflation (after solving the Phelps problem), the new observations will lend more support to the steeper Phillips curve, and the Phelps model will recommend even lower inflation. Eventually, this process can make the government learn the natural-rate hypothesis, and choose the Ramsey outcome. However, since this outcome is not an equilibrium (because the government cannot credibly promise to maintain zero inflation), eventually the government will increase inflation again, and the model moves towards the Nash outcome.

---

Our adaptive models thus contain basic support for our story explaining the conquest of American inflation during the 1980's. The econometric policy evaluation procedures criticized by Lucas are vindicated.

---

Our adaptive models thus contain basic support for our story explaining the conquest of American inflation during the 1980's as the success of the policy procedures of the 1960's and 1970's. Thus the econometric policy evaluation procedures criticized by Lucas are vindicated. It is time to leave the laboratory

and turn to history. In the next section the historical data are taken as inputs and used to generate parameter estimates and residuals. How the model matches the data, and how it misses, will vindicate or indict econometric policy evaluation.

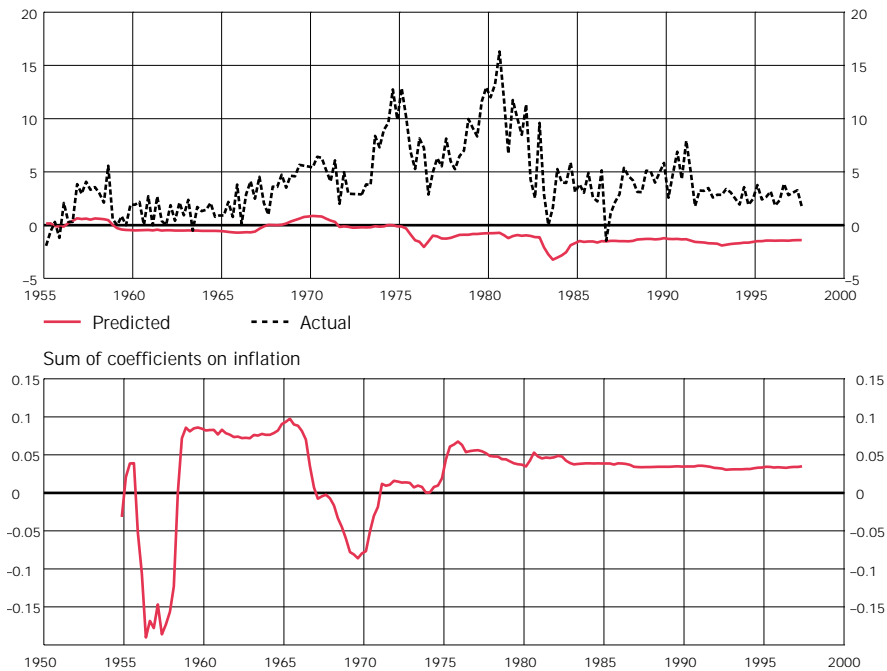
## Econometric policy evaluation

This section reports estimates of adaptive versions of our model under both classical and Keynesian identification schemes. The primary purpose is to use our econometric results to assess whether and how they might vindicate our model government's econometric policy evaluation process. The results will show why the Volcker stabilization occurred and why it was postponed until the early 1980's.

For the classical and Keynesian models, respectively, Figures 8 and 9 display the one-step ahead prediction for inflation, the actual inflation rate and the estimated sum of coefficients in the empirical Phillips curve. The top panels reveal



**Figure 8. Actual inflation and recommendation from classical model**  
Predicted and actual inflation



that both versions of the model fit the inflation process badly. The fit is appreciably worse for the model under the classical identification scheme. The Keynesian identification scheme leads to a more promising reflection of the inflation pattern, although the gap between predicted and actual inflation is large from 1973 until 1990. The Keynesian model to some extent matches the acceleration of inflation in the 1970's but underestimates inflation for the next 15 years. The classical model fails even to match the acceleration in inflation leading up to 1970. (The Keynesian model's better match to data caused its adoption in the U.S. Phillips curve literature.)

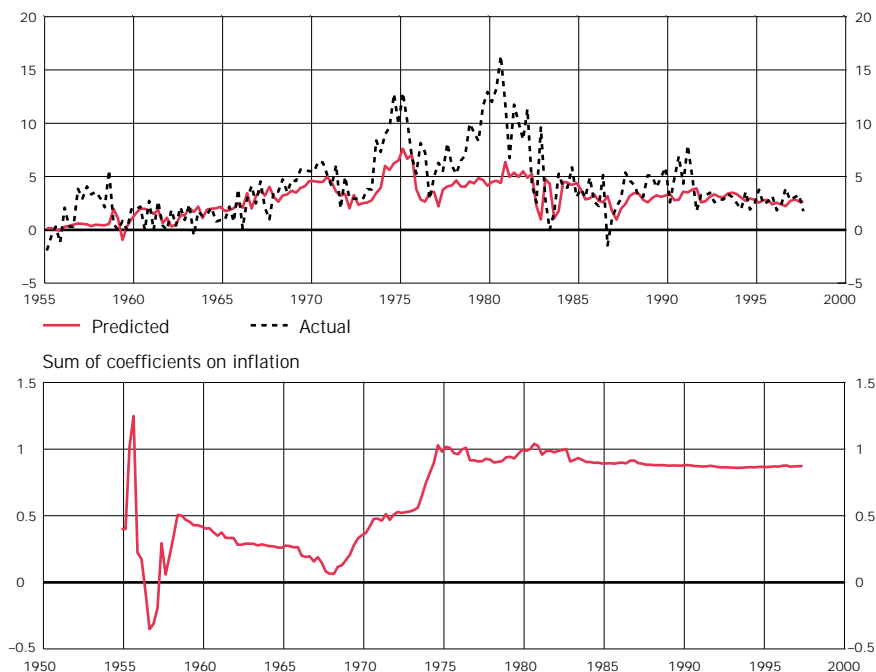
The large errors from our adaptive models are disappointing if we measure success by a good period-by-period fit. There is a long string of misses in the form of underpredictions of inflation during the 1970's, even for the Keynesian model. But such misses do not necessarily fail to vindicate econometric policy evaluation. To the

---

Unreconstructed Phillips curve fitters  
would have recommended lowering  
the inflation rate when inflation  
started to increase in the late  
1970's.

---

**Figure 9. Actual inflation and recommendation from Keynesian model**  
Predicted and actual inflation



contrary, the pattern of misses from the estimated models favors vindication. Remember that the fitted value from the adaptive model is the government's recommendation of inflation as time passes. These recommendations under the Keynesian identification scheme actually confirm our story. The econometric estimates in Figure 9 tell us that unreconstructed Keynesian Phillips curve fitters would have detected the adverse shift in the empirical Phillips curve, and would have recommended lowering the inflation rate when inflation started to increase in the late 1970's. Those quantitative policy evaluators would not have concurred with the loosely argued recommendations current in the 1970's that long lags in expectations made it too costly to disinflate. Our results in Figure 8 say that recommendations under the classical identification would have been to lower inflation even earlier than under the Keynesian interpretation.



# Triumph or vindication?

## EXPECTATIONS AND THE LUCAS CRITIQUE

The contest between our two accounts of post-1960 U.S. inflation – the triumph of natural-rate theory and the vindication of econometric policy evaluation – raises various issues about rational expectations models of macroeconomic policies. We began from two benchmark models: (1) a natural unemployment rate model with adaptive expectations for the public, but an optimal policy for the government (Phelps's model); and (2) a natural-rate model with rational expectations for the public, but an exogenous and arbitrary government policy (the Kydland-Prescott model). Lucas recommended replacing the first benchmark model with the second. Coming to grips with our two stories about post-1960 inflation has caused us to propose other models that make various compromises between these two benchmarks.

Models of credible government policies (such as those Kydland and Prescott, 1977, and Barro and Gordon, 1983) impose rationality on both the government and the private sector. In the end, it seems that after giving

---


After giving up a promise to offer recommendations, the theory of credible policy yields weak predictions about outcomes.

---

up a promise to offer recommendations, the theory of credible policy yields weak predictions about outcomes: even if concerns about the government's reputation might lead to better outcomes than in the one-period model, there are many possible outcomes, and it is not clear what will be the end result. This makes any declaration of the triumph of the natural-rate theory doubtful.

As an alternative, history was approached from the opposite pole, turning back from the Lucas Critique and beginning from Phelps's benchmark model. Starting with the problem he considered, we assumed that the government's model of the private sector's behavior is not arbitrary, based on some mechanical adaptive rule, but is chosen to fit historical data.

Via its connection to a self-confirming equilibrium, our 1990's adaptive model satisfies the desideratum that it should converge to rational expectations under tranquil conditions. But to match the data, our main interest has been in the recurrent dynamics contributed by adaptation. Suspecting that the Phillips curve is prone to wander, the government uses a learning algorithm that discounts past observations. Since the government's beliefs influence inflation via its optimization problem, its estimation choice makes a specification with time-varying coefficients worthwhile for both the government and the private sector.



---

Though both the public and the government behave in a stable way, our adaptive models generate simulations that exhibit abrupt stabilizations of inflation. It is the system's nonlinearities, rather than large shocks, that explain its behavior.

---

This brings us to regime shifts and nonlinearities. Though both the public and the government behave in a stable way, our adaptive models generate simulations that exhibit abrupt stabilizations of inflation. Regime shifts occur, not from a change in the government's econometric or policy-making procedures, but from disturbances and changes in beliefs created by the government's econo-

metric procedures. But it is the system's nonlinearities, rather than large shocks, that explain its behavior.

This returns us to the origin of the induction hypothesis. This hypothesis was incorporated almost without comment by Friedman (1957) and Cagan (1956) in formulating the adaptive expectations hypothesis. It was also the basis of Solow's and Tobin's early tests of the natural-rate hypothesis. Cast as a villain in Lucas's Critique, the induction hypothesis emerges as a hero in delivering the superior long term outcomes in our simulations and the timely recommendations to stabilize inflation that emerge from our econometric estimates.

## RESERVATIONS

The essay has compared two histories of postwar U.S. inflation: the *triumph of the natural-rate theory* and the *vindication of econometric policy evaluation*. Each history has the government learning and using a version of the natural unemployment rate hypothesis, either the correct rational expectations version in the triumph story or the approximating adaptive expectations version in the vindication story. The first history is more popular among modern macroeconomists than the second, which seems to defend discredited methods. The second story was considered partly because the first account has contradictions, loose ends, and elements of adaptation, and partly because the vindication story captures features of policy making at the Federal Reserve. The contest between the two histories is not rational expectations versus an alternative, because both selectively apply and withdraw from rational expectations.

The vindication of econometric policy evaluation is an exercise in positive economics, not normative economics. But because it produces near Ramsey outcomes for long periods, we might be tempted to transform it into a normative analysis recommending its econometric policy evaluation procedures. To dampen that temptation, we should recall the simulations presented above. The econometric policy evaluation methods would have yielded sound advice because the



U.S. data activated the induction hypothesis and recommended lowering inflation. However, the simulations contain episodes that resemble Arthur Burns as well as ones that look like Paul Volcker. In general, when estimates nearly affirm the induction hypothesis, the dynamics of the model point away from the induction hypothesis and toward regions where the government's estimates recommend resuscitating inflation to lower unemployment. It can take a long time to push the system back to the self-confirming equilibrium with high inflation, but it is bound to happen.

For this reason, the exercise in positive economics is not enough to commend its underlying policy making procedures. Theoretical work after Kydland and Prescott has insisted that anti-inflation policy is about designing and adhering to mechanisms that prevent the monetary authorities from choosing sequentially, and from even thinking about the possibility of lowering unemployment through inflation. That work seeks a secure foundation for assuring low inflation under fiat monetary systems. It rejects the idea suggested here that chance will lead policy makers armed with an approximate model eventually to learn to do approximately the right thing.

In the end, though our simulations and econometric evidence bolster the vindication of econometric policy evaluation story, we hope that it is the wrong story. We hope instead that policy makers somehow have learned a correct rational expectations version of the natural rate hypothesis and found devices to commit themselves to low inflation. Otherwise, the dynamics governing adaptation threaten eventually to rekindle inflation.

---

The vindication of econometric policy evaluation is an exercise in positive economics, not normative economics. The simulations contain episodes that resemble Arthur Burns as well as ones that look like Paul Volcker.

---

---

The exercise in positive economics is not enough to commend its underlying policy making procedures.

---

---

Though our simulations and econometric evidence bolster the vindication of econometric policy evaluation story, we hope that it is the wrong story.

---

# Appendix

## THE CREDIBILITY PROBLEM

In a simple version of the Kydland and Prescott (1977) model, the government sets the inflation rate  $y$ , and private agents choose their inflation expectations  $y^e$ . The unemployment rate  $U$  is determined by the relationship

$$(1) \quad U = \bar{U} - \theta(y - y^e),$$

where  $\bar{U}$  is the natural rate of unemployment and  $\theta > 0$ . The government's payoff is assumed to be

$$(2) \quad -\frac{1}{2} [U^2 + y^2],$$

and private agents have rational expectations, so on average they set their inflation expectations equal to the actual inflation rate;  $y^e = y$ .<sup>13</sup>

If the government takes the expected inflation rate as given, substituting the unemployment equation (1) into the payoff equation (2), its payoff is

$$(3) \quad -\frac{1}{2} [(\bar{U} - \theta(y - y^e))^2 + y^2],$$

so the optimal inflation rate is, minimizing equation (3) with respect to  $y$ ,

$$(4) \quad y = \frac{\theta}{1 + \theta^2} \bar{U} + \frac{\theta^2}{1 + \theta^2} y^e.$$

Assuming rational expectations, then, setting  $y^e = y$  in equation (4), the *Nash outcome* is

$$(5) \quad y^N = \theta \bar{U},$$

$$(6) \quad U^N = \bar{U}.$$

If instead the government realizes that  $y^e = y$ , and thus that  $U = \bar{U}$ , its payoff function is simply

<sup>13</sup> Since there is no uncertainty in this simple model, rational expectations coincide with perfect foresight.



$$(7) \quad -\frac{1}{2} [\bar{U}^2 + y^2],$$

and it chooses the *Ramsey outcome*

$$(8) \quad y^R = 0,$$

$$(9) \quad U^R = \bar{U}.$$

Consequently,  $y^N > y^R$ , but  $U^N = U^R = \bar{U}$ , so the Nash outcome is worse than the Ramsey outcome.

Note also that both the optimally chosen inflation rate and the Nash inflation outcome depend on the government's estimate of the slope of the Phillips curve ( $\theta$ ). As the Phillips curve becomes steeper in inflation – unemployment space (as in Figure 5),  $\theta$  falls. For a given level of inflation expectations, the optimal inflation rate in (4) then decreases, as does the Nash outcome (5). The Ramsey outcome is of course not affected, since it is always zero.

### THE CLASSICAL AND KEYNESIAN PHILLIPS CURVES

A simple version of the classical Phillips curve sees unemployment in period  $t$  as determined by the natural unemployment rate and the difference between actual and expected inflation (as in the Kydland-Prescott model) plus a disturbance:

$$(10) \quad U_t = \bar{U} - \theta(y_t - y_t^e) + \varepsilon_t^U.$$

The Keynesian version of the Phillips curve instead sees the inflation rate as determined by the expected rate of inflation and the difference between the actual and the natural rate of unemployment:

$$(11) \quad y_t = y_t^e - \gamma(U_t - \bar{U}) + \varepsilon_t^y.$$

Suppose the expected rate of inflation is determined by past inflation rates, for example,

$$(12) \quad y_t^e = \alpha_1 y_{t-1} + \alpha_2 y_{t-2}.$$

The induction hypothesis implies that if the inflation rate is set to a constant in every period, inflation expectations eventually converge to that constant. In our example, this means that if  $y_{t-1} = y_{t-2} = y$ , then eventually  $y_t^e = y$  as well, so the sum of coefficients in the expectations mechanism (12) must equal unity:  $\alpha_1 + \alpha_2 = 1$ .

Using this expectational mechanism in the two versions of the Phillips curve, we get

$$(13) \quad U_t = \bar{U} - \theta(y_t - \alpha_1 y_{t-1} - \alpha_2 y_{t-2}) + \varepsilon_t^U$$

in the classical model, and

$$(14) \quad y_t = \alpha_1 y_{t-1} + \alpha_2 y_{t-2} - \gamma(U_t - \bar{U}) + \varepsilon_t^U$$

in the Keynesian model. Therefore, if the induction hypothesis holds (so  $\alpha_1 + \alpha_2 = 1$ ), the estimated coefficients in front of current and lagged inflation in the classical Phillips curve sum to  $\theta(1 - \alpha_1 - \alpha_2) = 0$ , whereas the coefficients in front of lagged inflation in the Keynesian Phillips curve sum to  $\alpha_1 + \alpha_2 = 1$ . This in turn makes sure that there is no long-run trade-off between unemployment and inflation, but that the unemployment rate is determined by real factors only. Thus, the natural-rate hypothesis holds: setting inflation to a constant, both models imply that unemployment on average is equal to the natural rate.

### LEARNING MECHANISMS

In the simple adaptive expectations model, the expected rate of inflation in period  $t$  depends on past observed inflation according to

$$(15) \quad \begin{aligned} y_t^e &= y_{t-1}^e + \lambda_t(y_{t-1} - y_{t-1}^e) \\ &= \lambda_t y_{t-1} + (1 - \lambda_t)y_{t-1}^e, \end{aligned}$$

where  $0 \leq \lambda_t \leq 1$  is a parameter, possibly time-varying, that determines the rate of updating of expectations (or learning). The larger is  $\lambda_t$ , the more weight do agents put on the most recently observed inflation rate, so the faster they update their expectations. In the extreme case of  $\lambda_t = 1$ , agents simply set their inflation expectations equal to the observed inflation rate,  $y_t^e = y_{t-1}$ .

If  $\lambda_t$  is set to a constant ( $\lambda_t = \lambda$  for all  $t$ ), we can repeatedly substitute for the past inflation expectations, and get



$$\begin{aligned}
 y_t^e &= \lambda y_{t-1} + (1-\lambda)y_{t-1}^e \\
 (16) \quad &= \lambda y_{t-1} + (1-\lambda)[\lambda y_{t-2} + (1-\lambda)(\lambda y_{t-3} + \dots)] \\
 &= \lambda \sum_{\tau=1}^t (1-\lambda)^{\tau-1} y_{t-\tau}.
 \end{aligned}$$

In this case, with a constant rate of learning (or “constant-gain learning”), past observations are discounted by  $(1 - \lambda)$  for each period, so more recent observations are weighted more heavily than older observations.

An alternative learning scheme (“least squares learning”) weights all observations equally by setting  $\lambda_t = 1/t$ , so past observations are not discounted. Then inflation expectations are set as a simple average of all past observations:

$$(17) \quad y_t^e = \frac{1}{t} \sum_{\tau=1}^t y_{t-\tau}.$$



## References

- Barro, Robert J. and David B. Gordon, "Rules, discretion, and reputation in a model of monetary policy," *Journal of Monetary Economics* 12 (1), July 1983, 101–121.
- Baxter, Marianne and Robert G. King, "Measuring business cycles: Approximate band-pass filters for economic time series," *Review of Economics and Statistics* 81 (4), November 1999, 573–593.
- Cagan, Philip, "The monetary dynamics of hyperinflation," in Friedman, Milton (ed.), *Studies in the quantity theory of money*, Chicago University Press, 1956.
- Cho, In-Koo and Thomas J. Sargent, "Escaping Nash inflation," manuscript, Stanford University, August 1999.
- Friedman, Milton, *A theory of the consumption function*, Princeton University Press, 1957.
- Friedman, Milton, "The role of monetary policy," *American Economic Review* 58 (1), March 1968, 1–17.
- King, Robert G. and Mark W. Watson, "The post-war U.S. Phillips curve: A revisionist econometric history," *Carnegie-Rochester Conference Series on Public Policy* 41, December 1994, 157–219.
- Kydland, Finn and Edward C. Prescott, "Rules rather than discretion: The inconsistency of optimal plans," *Journal of Political Economy* 85 (3), June 1977, 473–491.
- Lucas, Robert E., "Econometric testing of the natural rate hypothesis," in Eckstein, Otto (ed.), *The econometrics of price determination*, Board of Governors of the Federal Reserve System, 1972.
- Lucas, Robert E., "Econometric policy evaluation: A Critique," *Carnegie-Rochester Conference Series on Public Policy* 1, 1976, 19–46.
- Phelps, Edmund S., "Phillips curves, expectations of inflation and optimal unemployment over time," *Economica* 2 (3), August 1967, 22–44.
- Ramsey, Frank P., "A mathematical theory of saving," *Economic Journal* 38, 1928, 543–559.
- Samuelson, Paul A. and Robert M. Solow, "Analytical aspects of anti-inflation policy," *American Economic Review* 50 (2), May 1960, 177–194.
- Sargent, Thomas J., *The conquest of American inflation*, Princeton University Press, 1999.
- Solow, Robert M., "Recent controversy on the theory of inflation: An eclectic view," in Rousseaues, Stephen (ed.), *Proceedings of a symposium on inflation: Its causes, consequences, and control*, New York University, 1968.



- Theil, Henri, *Economic forecasts and policy*, 2nd edition, North-Holland, Amsterdam, 1961.
- Tinbergen, Jan, *On the theory of economic policy*, 2nd edition, North-Holland, Amsterdam, 1952.
- Tobin, James, "Discussion," in Rousseaus, Stephen (ed.), *Proceedings of a symposium on inflation: Its causes, consequences, and control*, New York University, 1968.
- Varian, Hal R., *Intermediate microeconomics*, Norton, New York, 1987.



# Dealing with banking crises – proposal for a new regulatory framework

BY STAFFAN VIOTTI

*Advisor to the Governor of the Riksbank and adjunct professor at the Stockholm School of Economics*

*The Swedish banking crisis in the early 1990s was an extraordinary event. The age-old assumption that the Swedish banking system was sufficiently stable to cope with any shock was suddenly found wanting and a massive government rescue operation was required to prevent the collapse of the Swedish financial system, in particular the payment system. This rescue operation proved a success: the acute financial crisis was relatively short-lived and does not appear to have had particularly serious repercussions in the real economy, and the Swedish banking system has since functioned well. However, a number of financial crises elsewhere in the world have shown that the Swedish banking crisis cannot be viewed as an isolated episode. Instead experience from the Swedish crisis and the way it was handled provides valuable insights when formulating the foundations for the efficient and effective regulation of the financial sector in the future.*

## The Banking Law Committee's crisis management solution

The committee's final report proposes a regulatory framework that will not be activated until a crisis actually looms or arrives.

Indeed, this view was reflected in the terms of reference for the Banking Law Committee, a government inquiry set up in 1995. The committee has recently published its final report *Public administration of banks in distress* (SOU 2000:66) to supplement its main report *Regulation and supervision of banks and credit market undertakings* (SOU 1998:160). The main report proposes a

*The author would like to thank Sonja Daltung, Lars Hörngren, Torgny Hästad, Göran Lind, Gustaf Sjöberg and Anders Vredin for their valuable comments.*



revised system for regulation and supervision under normal conditions that reduces the risk of serious crises in the financial system as effectively as possible and with a minimum of adverse side-effects. It is concerned with measures and regulations designed to *prevent* crises in the first place and involves revising and updating an already extensive regulatory framework. By way of contrast, the final report proposes a regulatory framework that will not be activated until a crisis actually looms or arrives and is concerned with measures and regulations governing the way in which banking crises are to be managed and resolved. At present there is very little regulation at all in this area in Sweden, as was the case elsewhere in the world until quite recently. However, the last decade has seen the problems of managing banking crises gradually beginning to be taken seriously which also has led to new regulations in a few countries, including the USA.<sup>1</sup>

The purpose of this article is to outline the recommendations for the management of banking crises put forward by the Banking Law Committee and the analysis on which these recommendations are based. The recommendations presented in the committee's main report will be touched on only briefly and where needed to put the crisis management proposals in their proper context.<sup>2</sup>

The committee sought to draw on experience, both good and bad, from the Swedish banking crisis in its work. One of its points of departure, as in other areas of its work, was that the regulations proposed should focus on meeting clearly formulated objectives with a minimum of negative consequences for the ability of financial institutions to operate effectively in a competitive environment – in other words they should be in tune with the principles of the market economy.

---

The committee sought to draw on  
experience from the Swedish  
banking crisis in its work.

---

<sup>1</sup> Although the last decade has seen government deposit guarantee schemes being introduced in Sweden as well as many other countries, their primary purpose is to protect consumers and the current consensus is that they are not enough to deal with a systemic crisis. Nor has the central banks' classical function as lender of last resort ever been intended to handle banking crises: their purpose can better be defined as preventing crises by ensuring that liquidity in the banking system can be maintained.

<sup>2</sup> A more detailed review and analysis of the Banking Law Committee's main report can be found in Lind & Molin (1999).



## The Swedish banking crisis in retrospect

---

An overheated economy led to a speculative real estate price bubble that burst at the beginning of the 1990s due to a real interest rate shock.

---

Let us therefore begin with a brief recapitulation of the main features of the Swedish banking crisis and how it was handled.<sup>3</sup> The latter half of the 1980s brought the rapid deregulation of the Swedish banking sector and the banks suddenly found themselves free to determine their own lending growth, having previously been required to adhere to relatively restrictive limits laid down by the government. With an overheated economy, the banks were able to increase their lending rapidly, both in Swedish kronor and in foreign currencies like the US dollar and the German mark. The consequences included a surge in real estate and other asset prices, which in turn led to a speculative real estate price bubble. The culture of conservatism and prudence traditional in banking circles now went head-to-head with a new sales-oriented battle for market share; as real estate prices in particular began to soar, the latter view came to dominate and resulted in loans being granted without sufficient risk assessment and controls. The real estate bubble was then suddenly burst at the beginning of the 1990s by a real interest rate shock, caused partly by an international rise in real interest rates (often interpreted as a result of Germany's reunification) and partly by misplaced expectations of continued inflation in the prices of goods and assets in Sweden.

---

Despite temporary rescue operations in 1991, the crisis came to engulf the entire banking sector in 1992 and guidelines on the management of the crisis had to be unveiled during the autumn.

---

Many finance companies quickly collapsed and the banks were dragged deeper and deeper into the crisis by rapid growth in non-performing loans. Despite temporary rescue operations following acute problems at Nordbanken and Första Sparbanken in 1991, the crisis worsened in 1992 and engulfed the entire banking sector. The risk of the Swedish banking system collapsing altogether, with serious implications for the payment system and credit supply, was considered sufficiently great by the early autumn of that year to warrant drastic action by the government. An emergency package was duly unveiled in September 1992, setting out guidelines for the management of the banking crisis. Its most important features were as follows.

<sup>3</sup> There have been a number of excellent analyses of the Swedish banking crisis, such as Ingves & Lind (1996), Bäckström (1998) and the other contributions to the issue of *Ekonomisk Debatt* (1998) entirely devoted to the subject. See also Andersson & Viotti (1999).





Firstly, a general government guarantee was issued for the repayment of all claims on the Swedish banking sector and much of the rest of the financial services sector. A guarantee of this kind was considered necessary to prevent lenders from calling in the Swedish interbank market in panic.

Secondly, a rescue operation was set up in the form of a new government body, the Bank Support Authority, created to support banks in distress. The principles for this support were defined unambiguously: the cost to the government of supporting the banks was to be kept as low as possible, which meant that banks requesting support would have to agree to a comprehensive review of their operations; any injections of government funds would be on as close to normal commercial terms as possible; and the government guarantee did not extend to the banks' shareholders.

Thirdly, the importance of managing the banking crisis as openly as possible was stressed. This was essential for retaining confidence in the viability of the Swedish banking system in international financial circles as well as for keeping the Swedish populace abreast of what was happening.

The Swedish strategy for handling the banking crisis proved a success and is now regarded as something of a textbook example in the international debate. The Bank Support Authority's way of structuring its operations with a broad-based board, a small but efficient staff and the use of the top international consulting firms to analyse the banks requesting support has been studied in detail – as have the “bad banks” set up by transferring non-performing loans from the banks to special asset management companies. Given that the acute phase of the crisis can be considered to have been over by the autumn of 1993, it is tempting to draw the conclusion that the crisis was managed so well that we should be able to depend on this happening again in a future crisis. In this case there would be no need for specific crisis management regulations.

---

Firstly, a general government guarantee was issued for the repayment of all claims on the Swedish banking sector.

---

banks' loans in the international

---

Secondly, a rescue operation was set up in the form of a new government body created to support troubled banks.

---

the government of supporting the banks was to be kept as low as possible, which meant that banks requesting support would have to agree to a comprehensive review of their operations; any injections of government funds would be on as close to normal commercial terms as possible; and the government guarantee did not extend to the banks' shareholders.

---

Thirdly, the importance of managing the banking crisis as openly as possible was stressed.

---

well as for keeping the Swedish

---

The Swedish strategy for handling the banking crisis proved a success and is now regarded as something of a textbook example in the international debate.

---



## The need for a regulatory framework

---

The response to the Swedish banking crisis was improvised without any clear role models or regulatory support.

---

In my opinion – and that of the Banking Law Committee – this conclusion has a number of flaws. Appreciating these flaws is important for understanding the analysis underlying the Banking Law Committee's work on

both its main report and, in particular, its final report. It is beyond dispute that the design and implementation of the government's response to the Swedish banking crisis was improvised without any guiding precedent or regulatory support. A critical factor for the success of this improvised response was thus that the entire emergency package was considered credible, right from its announcement in September 1992. However, the level of preparation required for the legislation of the package meant that formal parliamentary approval could not be granted until December that year. The tiniest doubt on the part of international investors as to whether this approval would be given would have brought funding problems for the Swedish banks and could quite possibly have triggered the payment system crisis that the package was intended to prevent. Due to the widely felt sense of crisis, there was such broad political consensus on the need for far-reaching action to save the Swedish banking system that no such doubt ever arose. However, this degree of political unity cannot be taken for granted in a future crisis. The sense of crisis in the Swedish political system was unusually widespread when the banking crisis occurred. The economy was in freefall on almost every front and the drastic steps taken to support the krona (the Riksbank hiked up its overnight lending rate to 500%!) provided spectacular evidence of the severity of the situation. We would probably have to go back to the Second World War to find a similar degree of consensus across the political spectrum.

Thus, there is no guarantee that banking crises will strike only in situations where persistent deterioration in the economic climate has built up a general sense of crisis in the political system. In several of the countries hit by the Asian financial crisis in 1997, the crisis arrived almost out of the blue without macro-economic indicators giving any clear warning of its approach.

Furthermore, decisions need to be taken extremely quickly once a banking crisis threatens to become acute. The explosive growth in trading in securities, derivatives and foreign exchange witnessed in recent years has meant that banks increasingly are involved in complex and extensive systems for handling large payments. The counterparty exposures that arise at times are huge and extremely difficult to get a clear overview of, especially at the aggregate level. Should confi-

dence in one or more of the big banks suddenly deteriorate, this will probably lead almost immediately to funding problems in the interbank market, with uncertain and possibly severe consequences for the entire banking system.<sup>4</sup> In this scenario it may be just a matter of hours before the nation's payment system is paralysed unless steps are taken to restore confidence in the banking system.

---

The explosive growth in trading in securities, derivatives and foreign exchange witnessed in recent years has meant that banks increasingly are involved in extensive systems for handling large payments.

---

Coming up with an effective crisis management strategy from scratch at very little notice is no easy task. Although the management of the Swedish banking crisis can be considered as successful overall, it was not without its problems. Above all, the absence of a regulatory framework made it difficult to get the banks' owners and lenders to bear the losses. The conclusion has to be that it would be wrong to assume that a crisis management strategy can be improvised at short notice and be guaranteed broad political backing in the event of a future crisis. Instead a regulatory framework is needed that specifies which government bodies are to be involved if a crisis looms<sup>5</sup> and details the powers and duties they are to have. It should also provide directions as to how the crisis is to be managed and the legal backing needed to demand that owners and lenders of banks in distress accept their share of the responsibility.

---

A regulatory framework is needed that specifies which government bodies are to be involved if a banking crisis looms and gives them instructions on how to manage it.

---

## Which issues do the regulations need to tackle?

Having now established the need for the explicit regulation of the management of banking crises, we need to consider which issues require particular attention when formulating these regulations. Banks play a


---

Banks play a strategically important role in the payment system and credit supply and are therefore considered to be of special value.

---

<sup>4</sup> The problem of bank runs arises here, albeit in a slightly different form to that discussed in the textbooks. In this instance it is not ordinary depositors who spark off the panic since they generally benefit from some level of deposit insurance. Instead these runs can be triggered by the large interbank players which lend to each other on a short-term basis, often without formal collateral.

<sup>5</sup> The management of the Swedish banking crisis was assumed by the Bank Support Authority on the initiative of the Ministry of Finance. The Riksbank and the Financial Supervisory Authority had relatively peripheral roles for much of the crisis.



strategically important role in the payment system and credit supply and are therefore considered to be of special value. This has led to the view that banks deemed particularly important for system stability are considered so crucial that letting them fail is simply not an option – some banks are simply “too big to fail” and can therefore count on generous government support in the event of a crisis. Without regulations dealing specifically with this problem, moral hazard will arise since these implicit government guarantees will affect risk-taking by the banks in various ways.

---

One key task when drafting regulations on the management of banking crises should be to deal with the classic moral hazard issues as effectively as possible.

---

During the Swedish banking crisis the government issued a general bank guarantee. The fact that this was announced and considered credible by market players during a crisis was of crucial importance for the subsequent management of the crisis. Given

banks' particular sensitivity to sudden heavy liquidity drains, it is difficult to imagine any form of crisis management that does not include some kind of government guarantee. But if it is widely perceived that a general guarantee like that seen during the Swedish banking crisis will be issued again in the event of a future banking crisis, the classic moral hazard dilemma will arise. If a guarantee covers all the banks' creditors, both the banks and their lenders will behave as if all lending to banks is effectively free from any credit risk. This, in the same way as deposit insurance on overly favourable terms, will lead to the banks being able to fund high-risk activities at an excessively low cost. Ultimately the government – and so the taxpayer – will end up paying a high price for a guarantee of this kind. It is rarely possible for moral hazard issues to be resolved in a market economy without any cost at all but it is normally possible to reduce this cost markedly. One key task when drafting regulations on the management of banking crises should therefore be to deal with moral hazard issues as effectively as possible.

---

Another major problem also derives ultimately from the fact that the banks are considered to be of special value and often as too big to fail.

---

Another major problem that the Bank Support Authority had to tackle was the possibility of the banks' owners and managers black-mailing it into granting concessions to which they were not entitled. This problem too

derives ultimately from the fact that the banks are considered to be of special value and often as too big to fail; the moral hazard dilemma arises once more and for similar reasons to those cited above. In more concrete terms the problem stems from the fact that for various reasons the general regulatory framework for businesses in financial difficulties, namely the legislation on bankruptcy and



reconstruction, is ill suited to banks – in fact the latter is not in any way applicable to banks. To understand this we need to take a brief look at Swedish insolvency law and its purpose.

### GENERAL INSOLVENCY LAW IN SWEDEN

While there may be major differences in its legal realisation, the basic reasoning underlying insolvency law is much the same in all market economies. Separate legislation for insolvency is required for several reasons. A company believed to be in such difficulties that there is a risk of it not being able to pay its creditors on time could easily be exposed to such pressure from its creditors to settle its debts quickly that the prophecy becomes self-fulfilling. The company could be forced to close for business even if it is profitable in the longer term. It is only natural for creditors to demand payment while there is still something to be had out of the company. Without a regulatory framework to govern the management of insolvency, creditors could therefore be tempted to carve up the company's assets on the mere suspicion of it having run into trouble.

---

The basic reasoning underlying insolvency law is much the same in all market economies.

---

Even companies in good health will see an increase in the cost of capital if investors believe that there is a risk of this kind of scramble in future situations where there is uncertainty regarding their rights as creditors. There are thus societal benefits to be gained from having a regulatory framework for the orderly handling of companies in financial distress. The standardisation of the procedure for dealing with insolvency reduces the risk to which creditors are exposed and so brings down the cost of capital. It should also reduce the risk of capital destruction in the real economy brought on by panicky fire sales of company assets.

---

Regulations to ensure that troubled companies are dealt with in an orderly manner make sound economic sense.


---

Under Swedish bankruptcy law, a creditor or the shareholders of a company may file for bankruptcy. A bankruptcy order is then issued by the court if the company is deemed unable to settle its debts rightfully now or in the near future and if this inability is not considered temporary. Once the bankruptcy order has been issued, an external manager (receiver) is appointed to take over the running of the company's affairs. The receiver's role in the first instance is to turn the company's assets into cash for distribution to its creditors in the

---

Once a bankruptcy order has been issued, a special manager (receiver) takes over the running of the company.

---



appropriate order of priority in the way that is most beneficial and fair to the creditors. Any remaining capital will then be distributed to shareholders once the company has been wound up.

---

The bankruptcy legislation also contains provisions intended to help the manager to rescue viable companies from liquidation.

---

The basic bankruptcy procedure is therefore relatively straightforward. However, its practical implementation does of course have countless complications. While there is no need for us to go into these here, a number of

points are still worth noting. Although the procedure is intended to result in creditors being paid in cash, there is nothing to stop the company from continuing as a going concern. The appointed receiver may decide that it would be better to sell the company as a going concern rather than simply dispose of its assets. The legislation also contains provisions intended to help the receiver to rescue viable companies from liquidation. So, for example, loans may be taken out after the bankruptcy order has been issued if the receiver believes that this will benefit the company and so also its creditors. These loans are given priority over all other creditors so that the company is able to borrow the money needed for its continued operation. Similarly previous loans may be repaid even though the basic principle is that the company's balance sheet is to be frozen from the time the bankruptcy order is issued. However, it is a condition that such repayments must benefit all creditors, which is often difficult to prove, and so normally a receiver will think very carefully before exercising this option. Again to facilitate the survival of viable companies, new legislation on reconstruction was introduced relatively recently to supplement the bankruptcy rules. These rules allow reconstruction without creditors being paid in cash and without the company's management being replaced by a receiver.

## General insolvency law and the banks

---

No banks were declared bankruptcy during the Swedish banking crisis because the consequences for the banking system as a whole were to be too great.

---

As mentioned above, Sweden's reconstruction legislation does not apply to the banks at all but its bankruptcy legislation does. Even so, no banks were put into bankruptcy during the Swedish banking crisis: the government decided that this was not an option in a situa-

tion where many banks had run into trouble at the same time, because the consequences for the banking system as a whole were to be too great. The most important reason for this is that the system stability issue – the issue that it is absolutely



vital to tackle straight away – cannot be dealt with within the framework of bankruptcy law. The receiver is appointed to look after the interests of creditors and will therefore be unable to take the steps needed to safeguard system stability if they conflict with these interests. Nor can the receiver be expected to have the insight into the workings of the overall banking system to take the quick decisions needed to restore stability to it.

Some aspects of the general bankruptcy procedure are also difficult to apply to the banks. Freezing a company's assets and suspending its payments from the time the bankruptcy order is issued could have serious implications if applied to banks. A bank's liabilities do after all form an active part of its business operations, and its borrowing and interbank funding activities reflect among other things the banks' central role in the payment system. Suddenly freezing the repayment of these liabilities at one or more big banks could have immeasurable consequences for the banking system as a whole.

When a company runs into financial difficulties for some reason, its creditors and management will often enter into negotiations in a bid to resolve its financial problems. Sometimes the two parties are able to agree quickly that the company's financial future is bright and that the acute problems should be resolved through some change in the company's financing structure. The option of an bankruptcy order serves as a kind of end-point for this process: thus even in cases where problems are resolved through the negotiation of some form of voluntary arrangement, the risk of bankruptcy will play a role. Without bankruptcy functioning as a credible threat, there would be a risk of the negotiations dragging out or collapsing altogether.

During the Swedish banking crisis bankruptcy was not perceived as a credible threat by the banks applying for support from the Bank Support Authority. For the reasons cited above, letting a bank go bankrupt would effectively relieve the Bank Support Authority


---

During the Swedish banking crisis bankruptcy was not perceived as a credible threat by the banks applying for support from the Bank Support Authority.

---

of control over the future management of the bank. This would in turn have implications for the credibility of the only heavy weapon with which the government can threaten troubled banks: revoking their charters. Under the capital adequacy rules a permanent drop below the statutory minimum capital ratio of 8% will in principle lead to a bank losing its charter, but this would immediately have led to insolvency and so this too was a far from credible threat.

Without any credible end-point for the negotiations between the Bank Support Authority and a bank's owners and managers, the latter would be in a position to



---

A new temporary law was passed during the banking crisis to entitle the Bank Support Authority to take over the running of a bank if its capital adequacy ratio fell below 2 per cent.

---

slow down the whole process in a bid to secure concessions to which they would not have been entitled had the bank been put into bankruptcy. To tackle this problem, a new law was passed during the banking crisis which in principle entitled the Bank Support Authority to take over the running of a bank through a

compulsory take over of a bank's shares if its capital adequacy ratio fell below 2 per cent. However, this law applied only temporarily and is no longer valid.

## The Banking Law Committee's recommendations

---

The Banking Law Committee's recommendations break down into two main parts: a special scheme for the reconstruction and winding-up of banks and the creation of a special government body.

---

The analysis of the management of the Swedish banking crisis above should have demonstrated a need for the explicit regulation of the management of future banking crises. For one thing, it would be too risky to rely on improvising decisions in a crisis with the same degree of success as enjoyed in the

early 1990s. For another, an attempt needs to be made to minimise the potential moral hazard problems in respect of creditors and shareholders/management. The Banking Law Committee's recommendations for resolving these issues break down into two main parts: a special scheme for the reconstruction and winding-up of banks termed "public administration" and the creation of a special government body called the Crisis Management Authority with the primary (but not sole) role of managing banks in public administration.

Both of these recommendations will be discussed in detail below. Please note that, when referring to the Crisis Management Authority in the section on public administration, no position has been taken on the exact status that the authority should be given.

### PUBLIC ADMINISTRATION – A REGULATORY FRAMEWORK

---

Public administration is a regulatory framework designed specifically to deal with troubled banks.

---

Public administration is a regulatory framework designed specifically to deal with troubled banks – it was not considered possible to resolve the problems discussed above





within the framework of the existing insolvency legislation. The criteria that must be met for a bank to be sent into public administration are either (1) that it is unable or is not expected to be able to fulfil its obligations and that this inability cannot be considered temporary, or (2) that there are grounds to revoke its charter. The first criterion is effectively the same as that for the issue of a bankruptcy order. The decision to put a bank into public administration is to be taken by a court following a petition from the Crisis Management Authority. The bank cannot be put into bankruptcy for as long as it is in public administration.

When a bank is put into public administration, the Crisis Management Authority will assume control of its business but not its formal ownership. Unlike with bankruptcy where there is a change of legal status, with public administration the ordinary corporate

---

When a bank is put into public administration, the Crisis Management Authority will assume control of its business but not its formal ownership.

---

governing bodies will continue to serve in line with ordinary company law. However, the Crisis Management Authority will temporarily take over shareholders' voting rights and can therefore control the bank's general meeting and board. One key element in this system is that the bank must be able to continue trading while in administration and must be allowed to return smoothly to normal operation again if its problems prove to be such that it would best be reorganised and survive in its original legal form. This not being the case, the bank may be allowed to go into bankruptcy and liquidation in the normal manner if the Crisis Management Authority believes that this will be possible without impacting on the stability of the banking system.


The introduction of the public administration rules should serve as a credible end-point for future negotiations of the kind in which the Bank Support Authority was involved during the banking crisis. This should make it easier to reach settlements

---

The introduction of the public administration rules should make it easier to reach settlements whereby the bank's owners take care of its restructuring and recapitalisation.

---

whereby the bank's owners take care of its restructuring and recapitalisation. The Crisis Management Authority is to play an active role as a coordinator of the negotiations that can be expected to take place before it is deemed necessary to place the bank into public administration. The introduction of public administration of troubled banks should also impact on the behaviour of the banks under normal circumstances: the fact that shareholders cannot count on getting as much out in a crisis and that lenders may incur losses should, other things being equal, lead to better risk management and reduced risk exposure at the banks.



---

As with bankruptcy, the rights of creditors must not be ignored.

---

As with bankruptcy, the rights of creditors must not be ignored – relative to both other stakeholders and fellow creditors. However, as stated above, it is much more problematic to freeze a bank's balance sheet than that of a non-financial company: a bank's balance sheet plays an integral role in its business in an entirely different way. The Crisis Management Authority should therefore permit those payments that it considers necessary to avert the risk of the bank causing serious disturbances in the banking system, in particular the payment system. Not until it is considered possible from a systemic point of view can a general suspension of payments be introduced. It should be noted that creditors are to be compensated for any (further) losses brought on by the delayed suspension of payments.

---


The Crisis Management Authority is to be entitled to issue a government guarantee – but only for debts arising after its issue.

---

How then has the Banking Law Committee sought to deal with the moral hazard issues that arise from the expectations of a bank's lenders that the government will again issue a general guarantee in a crisis? The committee is proposing that, in connection with the suspension of payments from a bank in public administration and with the consent of the government, the Crisis Management Authority should be entitled to issue a government guarantee – but only for debts arising after its issue.<sup>6</sup> This restriction of the scope of the government guarantee limits the moral hazard problem discussed earlier. It also has some consequences for the banks' funding. Firstly, the cost of medium/long-term funding should increase once these financiers realise that they could now lose their money. Secondly, there may be an increased risk of a bank being exposed to sudden drops in short-term funding following rumours of financial difficulties. The higher medium/long-term funding costs may of course have an adverse impact on the banks' earnings, but this can be seen as a good thing from an economic point of view since it stems from more accurate pricing of the banks' risk-taking. When it comes to the problem of acute bank runs, the idea behind the committee's recommendations is that this is the price that has to be paid for limiting moral hazard, but that the price does not need to be that high in terms of systemic risk.

This is best understood if we take a look at how it is intended that a crisis be managed under the new rules. Problems or rumours of problems at one or more

<sup>6</sup> There are parallels here to the way in which bankruptcy law deals with loans taken out after a bankruptcy order has been issued.



banks can obviously lead rapidly to difficulties with funding in the interbank market. As mentioned earlier, in these situations it may not be very long at all before the entire payment system collapses unless steps are taken quickly to restore stability. The Riksbank plays an important role when it comes to dealing with acute liquidity problems at the banks in its capacity as lender of last resort. In actual fact one might say that it is in these very circumstances that a central bank in a well developed financial system has grounds to issue emergency credit – in other words lend to the banks without demanding full collateral. The eligibility criterion for emergency loans of this kind is generally formulated such that the bank must be deemed illiquid but solvent. However, as has long been realised, this is not a definition that can be applied in practice, primarily because the time available before a decision has to be made on whether to grant the loan is normally impossibly short for this kind of assessment. At the same time the central bank's role is to shore up the banks' liquidity rather than supply them with risk capital. It is therefore important for the Crisis Management Authority to be given the role, partly by putting troubled banks into public administration, of reaching an assessment as quickly as possible of both the systemic risks and the bank's position and chances of returning to normal operation. As soon as the Crisis Management Authority believes there is reason to request government consent for the issue of a government guarantee for loans taken out after the bank was placed into public administration, the Riksbank's emergency loans can be replaced with normal lending in, say, the interbank market. Any need to recapitalise troubled banks would then be an issue for the Crisis Management Authority and thus the taxpayers as well as any private financiers.

CRISIS MANAGEMENT ORGANISATION AND RESPONSIBILITIES


One of the points of departure for the committee's work was that the delegation of duties in the event of a future banking crisis must be established in advance. The fact that it is not considered appropriate to improvise a crisis management concept once a crisis

---

One of the points of departure for the committee's work was that the delegation of duties in the event of a future banking crisis must be established in advance.

---

looms does not necessarily mean that there needs to be an organisation in place under normal circumstances. Would it not be enough to have a fully formulated concept ready to be activated in an emergency? There are a number of reasons why the Banking Law Committee does not believe this to be the case. One of the most important has already been stressed above in several contexts: the need for quick and professional action from the authorities in times of crisis. Once a crisis



arrives, there is no time to debate whether or not it is time to activate the crisis management concept or, if this is the case, to find the people needed to do the job. As mentioned earlier, it is also intended that the body responsible for crisis management should play a key role in the negotiations that precede public administration and so help to prevent troubled banks from having to be placed into public administration at all. These negotiations must take place under complete secrecy if they are to stand the slightest chance of success, but decisions to activate a crisis management organisation can hardly be made without this becoming public. It is therefore crucial that the organisation is already in place when a crisis looms and that a number of key players in the crisis management process are well versed in their roles.

Since a banking crisis can come on very quickly, it is also important that those responsible for managing a crisis are given an opportunity to prepare in various ways. This might cover everything from practical training in handling the media in an emergency to in-depth scenario-based analyses of previous banking crises.

---

The Banking Law Committee has chosen to recommend that a new government body be created to manage banking crises.

---

The fact that there needs to be an organisation in place to handle banking crises does not necessarily mean that a *new* body needs to be set up specifically for this purpose.

Responsibility for crisis management could be assigned to a number of existing bodies, such as the Riksbank, the Financial Supervisory Authority or the Deposit Guarantee Board. However, the Banking Law Committee has chosen to recommend that a new government body be created to manage banking crises. It is worth taking a brief look at how the committee reached this conclusion and also discussing its recommendations for the delegation of duties relative to other government bodies in the financial arena. However, it should be stressed that the exact nature of the proposals discussed here is not of the same fundamental importance as the committee's conclusion that there must be some form of crisis management organisation in place even under normal circumstances.

---

One reason why the Riksbank was not given responsibility for managing banking crises is that it would be inappropriate to mix the roles of liquidity manager and crisis manager.

---

We have already touched on the role of the Riksbank. Besides safeguarding the value of money, it is tasked with maintaining a safe and efficient payment system. One critical success factor in this respect is a stable banking system and so the Riksbank is responsible for ensuring that the banking system fulfils its



key economic role when it comes to the payment system and the supply of credit. The Riksbank's oversight capacity in this area is reflected in its biannual stability reports containing analyses of developments in the banking sector with particular emphasis on risk exposure. Given the level of expertise that the Riksbank already has to maintain when it comes to financial stability, it might seem a natural candidate for the role of managing banking crises. However, one factor that speaks against such an arrangement is that it would be inappropriate to mix the roles of liquidity manager and crisis manager. In a crisis the Riksbank needs to be able to focus on its role of providing emergency credit to maintain liquidity in the banking system. It might also be problematic for the Riksbank with its special position to be given direct responsibility for decisions on rescue operations that can entail substantial costs to the taxpayers.

The Financial Supervisory Authority is responsible for the supervision of Swedish banks, a role which is set to change rapidly. This is reflected in both the Banking Law Committee's main report and the recently published proposals for reforming the Basel Committee on Banking Supervision's capital adequacy recommendations. Given the advanced risk management systems now in place in the financial services sector, simple quantitative limits are becoming increasingly inadequate and need to be supplemented with a more qualitative form of supervision based on a multifaceted analysis of risk exposure and capital adequacy at the banks and other financial institutions.

The Banking Law Committee recommends in its main report that the supervision of the banks should be based on three introductory provisions that set out requirements for the banks' solidity, risk management and transparency. This would give the Financial Supervisory Authority a more unambiguous


---

One reason why the Financial Supervisory Authority should not be given responsibility for crisis management is the risk of a conflict of interests between the roles of crisis manager and bank overseer.

---

mandate than is currently the case to intensify the supervision and demands made of banks believed to be at risk of ending up in the danger zone. It may be important for the Financial Supervisory Authority to be able to focus on this role in a crisis and not have to tackle the very different role of handling the public administration of banks.<sup>8</sup> One perhaps more important reason why the Financial Supervisory Authority should not be given responsibility for crisis management is the risk of a conflict of interests between the roles of crisis manager and supervi-

<sup>8</sup> Similarly, the Deposit Guarantee Board has a clearly formulated role as insurer, which should not be combined with the actual management of a banking crisis.



sor of those banks that have *not* got into trouble. The authority's role in a crisis should therefore be to continue to supervise the banks in accordance with the general guidelines in place.

#### A SEPARATE CRISIS MANAGEMENT BODY FOR INITIATIVE AND COORDINATION

---


The best basis for managing a banking crisis would be provided by a new Crisis Management Authority which remains in place even under normal circumstances.

---

The Banking Law Committee has therefore concluded that the best basis for managing a banking crisis along these lines would be provided by creating a new Crisis Management Authority which remains in place even under normal circumstances. The committee's

report does not look at exactly how the authority should be organised, but the structure of the Bank Support Authority with its broad-based board and small permanent staff could provide one role model. Inspiration could also be drawn from experience in the UK. In connection with the reorganisation triggered by the new independent role for the Bank of England and the creation of a single supervisory body in the form of the Financial Services Authority, a special "memorandum of understanding" was drafted which sets out how the Bank of England, the Financial Services Authority and the Treasury are to cooperate and consult each other to prevent and manage crises in the financial system. To this end a special standing committee with representatives from these three bodies has been set up and meets regularly to discuss and analyse issues with a bearing on financial stability. In the event of a crisis the Governor of the Bank of England, the Director of the Financial Services Authority and the Chancellor of the Exchequer will head the committee work, while in normal circumstances they will retain the ultimate responsibility but delegate the work to civil servants with expertise in financial stability.

The Swedish Crisis Management Authority as proposed by the Banking Law Committee can be seen as a rather more formalised variant of this standing committee. The authority would be charged with ensuring constant analysis and assessment of the stability of the banking system in collaboration with the Riksbank, the Financial Supervisory Authority and, where appropriate, the Ministry of Finance. The authority's board, which should include senior representatives of these three bodies, would be kept abreast of the latest experience and information through these meetings. The Crisis Management Authority should then be in a position to do its job and take the initiative quickly if a crisis looms. At the same



time there should also be a sound basis for efficient coordination of the different bodies involved in managing the crisis.

## References

- Andersson, M. & Viotti, S. (1999), "Managing and preventing financial crises", *Sveriges Riksbank Quarterly Review*, 1999:1.
- Bäckström, U. (1998), "Finansiella kriser – svenska erfarenheter" [Financial crises – Swedish experience], *Ekonomisk Debatt*, No. 1, 1998.
- Ekonomisk Debatt (1998), No. 1, Temanummer om den svenska bankkrisen [Special issue on the Swedish banking crisis].
- Ingves, S. & Lind, G. (1994), "The management of the bank crisis – in retrospect", *Sveriges Riksbank Quarterly Review*, 1996:1.
- Lind, G. & Molin, J. (1999), "Towards new national and international banking regulations", *Sveriges Riksbank Quarterly Review*, 1999:3.
- Swedish Official Government Reports Series (1998), *Reglering och tillsyn av banker och kreditmarknadsföretag – Huvudbetänkande av Banklagskommittén* [Main report of the Banking Law Committee: *Regulation and supervision of banks and credit market undertakings*], SOU 1998:160.
- Swedish Official Government Reports Series (2000), *Offentlig administration av banker i kris – Slutbetänkande av Banklagskommittén* [Final report of the Banking Law Committee: *Public administration of banks in distress*], SOU 2000:66.



# The Banking Law Committee's main and final reports


---

*The Riksbank has decided to publish the summaries from the main and final reports of the Banking Law Committee in this issue of the Economic Review. The committee's remit was to develop a new regulatory framework that would both help to reduce the risk of future banking crises and set out more clearly how a banking crisis should be managed should one still strike. Important in terms of both the proposed new regulations and the underlying analysis, the work carried out by the committee should be of great value not only to the Riksbank, which is responsible for the stability of the Swedish financial system alongside the Financial Supervisory Authority, but also to all those interested in the development of the banking system and the financial sector as a whole.*

*This issue also includes an analysis and assessment of the committee's final report by Staffan Viotti, while issue 1999:3 contained an article by Göran Lind and Johan Molin examining the recommendations in the committee's main report and drawing interesting parallels with the reforms proposed by the Basel Committee on Banking Supervision.*

*This English edition of the Economic Review affords the outside world a unique insight into the work of the Banking Law Committee since both its reports have been published in Swedish only without even an English summary.*





# *The main report of the Banking Law Committee: Regulation and supervision of banks and credit market undertakings (SOU 1998:160)*

## Introduction

This report examines the regulation and supervision of the payment system and credit supply system in Sweden. The recommendations are based on an open-minded analysis of the role of payment services and the supply

of capital in the economy and of interests in these areas that call for special protection. The committee's approach can therefore be considered functional rather than institutional (in the sense of taking existing institutions as its point of departure) and has necessitated deliberations at the most fundamental level to elucidate the underlying objectives and most appropriate scope for the regulatory framework in this area.

Developments in the financial sector have underlined a need to reform Sweden's financial legislation, with the rapid rate of change making parts of the existing regulatory framework redundant. The danger with obsolete regulations is that they may not only prevent the introduction of promising new

solutions but also fail to check the growth of those that are potentially harmful. The current structure of the regulatory framework means that new phenomena often require the legislation to be amended from case to case. The committee has considered it one of its main tasks to devise a regulatory framework that does not require updating as soon as a new technical solution or product is launched. The proposed legislation is sufficiently open to promote competition using different technical solutions and products.

While the committee's fundamental analysis is functional in its approach, it is ultimately the institutions that fulfil these functions that need to be regulated. Nevertheless the committee's recommendations entail toning down the existing institutional emphasis of the regulatory framework. This will provide greater scope for financial services companies to adopt different approaches to their operations, which will benefit consumers through stiffer competition between the

---


This report examines the regulation and supervision of the payment system and credit supply system in Sweden.

---

---

The committee has considered it one of its main tasks to devise a regulatory framework that does not require updating as soon as a new technical solution or product is launched.

---



various players in the financial markets, and greater scope for the Swedish institutions to compete effectively in the international market.

---

The committee has concluded that the legislation proposed in this report should focus primarily on system stability issues.

---

The committee has concluded that the legislation proposed in this report should focus primarily on system stability issues, while considerations such as competition and consumer protection should as far as possible be dealt with by the general legislation applicable in these areas. One reason for this is that the resources of the Financial Supervisory Authority can then be concentrated on areas of importance in protecting the system, reflecting the great economic importance of its stability.

EEC law plays a major role in the areas covered by the report and the committee's recommendations comply with applicable EEC legislation. One point of departure for the committee's work was that it should be possible to use the fundamental arguments presented in this report to support the Swedish stance when it comes to negotiating new EEC rules.

Note that the committee has chosen to use the terms *special value* and *vulnerability* as follows: the former reflects the importance of a particular function in the financial system to the economy as a whole, while the latter refers to the need to protect a function through regulation; a function must be both of special value and vulnerable for regulation to be warranted. The committee has used the word *business* to denote a company's activities as a whole and *operations* for specific parts of its business.

## Summary of the committee's recommendations

The following is a summary of the committee's recommendations. An overview of the background to and reasons for the recommendations can be found in the section entitled "Background, approach and points of departure" and in the introductions to parts 1 and 2 of the report.

### NEW DEFINITION OF BANKING BUSINESS

The clearing and settlement of payments are among the main roles of the financial system and is based on the banks' system for payment transfers and the associated accounts. The current Swedish legislation defines banking business as "operations which include the acceptance of deposits on account where the balance is determined in nominal amounts and is available to the depositor on short notice". This definition fails to capture those aspects of banking business deemed to be of special



value and is also technically narrow and easily circumvented. The committee proposes that *banking business be redefined* as business that includes both payment services via general payment systems and the acceptance of funds that may be called at short notice. It is payment systems that are publicly accessible and relied

---

The committee proposes that *banking business be redefined* as business that includes both payment services via general payment systems and the acceptance of funds that may be called at short notice.

---

on by large numbers that is considered to be of special value. This function is also considered to be vulnerable if it is financed through the acceptance of funds callable at short notice, since this entails a risk of runs on a bank – and in this respect it is immaterial in which form or name these funds are made available to the bank. The proposed definition therefore captures both the function that is of special value and the financing that makes it vulnerable.

NEW OPERATING REGULATIONS FOR BANKS

The committee has concluded that the risk of systemic crises is best countered by ensuring that individual banks have sufficient solidity to withstand various forms of disturbance. One goal for banking legislation can therefore be said to be ensuring that the banks

---


To achieve the overall goal of solid banks, the committee recommends the adoption of three introductory provisions setting out a framework for banking business.

---

maintain their solidity. This demands rules to reduce the risk of losses and measures to increase resilience in the event that losses are incurred. Solidity therefore depends not only on a bank maintaining specific levels of capital reserves but also on it taking various steps to limit its risk exposure. To achieve the overall goal of solid banks, the committee recommends the adoption of three introductory provisions setting out a framework for banking business in the form of rules on solidity, risk management and transparency.

The current operating regulations feature detailed control in many areas and virtually none in others. It is difficult to discern the principles underlying the regulatory framework due to the introduction of extensive exemption clauses and the revocation of many of the original provisions. The committee’s proposed operating regulations involve a transition to a legal framework that is more in the nature of framework legislation and reverses the understanding implicit in the existing law that everything not expressly permitted for a bank is prohibited.

One key principle behind the recommendations is that the banks should be required to maintain sufficient control over the risks associated with their business that their survival is not jeopardised. It is essential that the risk limitation rules



---

One key principle behind the recommendations is that the banks should be required to maintain sufficient control over the risks associated with their business that their survival is not jeopardised.

---

target a bank's overall risk exposure. It is not enough to regulate only those operations deemed to be of special value: risk exposure must be limited throughout the bank's business.

*The solidity provision* requires that risk exposure throughout the business be tailored to the

bank's capital strength in such a way that the bank's ability to meet its commitments is not jeopardised.

*The risk management provision* requires a bank to identify, measure and control the risks with which its business is associated, which means in turn that it must have in place information, management and control systems tailored to its business. Thus a bank must be able to limit and control all the risks associated with its business, which makes these general requirements more demanding than those laid down in the current legislation. With risk limitation in mind, the committee also recommends absolute limits on the size of some of a bank's shareholdings and other exposures to other companies.

*The transparency provision* requires a bank to conduct and organise its business in such a way that it is sufficiently transparent both internally and externally that the bank's risk exposure and other aspects of its position can be assessed.

The banks enjoy a unique position in the economy and most banks offer a broad range of financial services. For the banks to be able to fulfil their function in the economy, it is important that confidence in the banking market is maintained. To this end the committee recommends the adoption of a provision requiring a bank to maintain *good banking standards* in its business. This provision would constitute an important element in the protection of consumers in this area (see also "Consumer protection" below).

## OTHER OPERATING REGULATIONS

The guiding principles for how banking business should be conducted are expressed in the four introductory provisions on solidity, risk management, transparency and good banking standards outlined above. Other operating regulations are considered below:

*Written instructions* to employees at different levels are required in the management of a variety of operations at a bank. Although it might be considered implicit in the general provisions set out above that written instructions must be issued where necessary for the management of specific activities, the committee believes that there should be an express provision to this effect.



Traditionally it has not been permitted for banks to engage in non-financial operations themselves rather than through a separate legal entity. Although *non-financial operations* cannot generally be considered to be any more risky or less transparent than financial operations, the committee has concluded that there are social benefits to restrict the banks' involvement in non-financial operations. It is recommended that banks be given only limited scope to engage in non-financial operations. The committee also recommends that banks should be allowed to hold property only where this is required to engage in approved operations; this recommendation does not apply to holdings of shares and equivalent interests.

---

It is recommended that banks be given only limited scope to engage in *non-financial operations*.

---

The regulation of *holdings of shares and equivalent interests* is based closely on the provisions of EEC law. The committee recommends limits on "qualified holdings" of shares and equivalent interests in companies with non-financial operations of 15 per cent of a bank's capital base in a single company and 60 per cent in all qualified holdings combined. These limits may be exceeded if the bank has full capital cover for the excess. The committee recommends the abolition of the *five per cent rule* on maximum holdings of voting rights in a target company.


---

The regulation of *holdings of shares and equivalent interests* is based closely on the provisions of EEC law.

---

The above limits do not apply to holdings in certain types of financial services company. In this case a provision on *bank contagion* is recommended with a view to preventing banks from circumventing the banking legislation by transferring operations to financial services companies regulated less closely than the banks. This means that, if a bank has a qualified holding in a financial services company in excess of the above 15 per cent limit or an exposure in excess of 25 per cent of the company's capital base and that company is part of the same group as the bank, the provisions of the Banking Business Act and the Capital Adequacy and Large Exposures Act regarding the business and supervision of banks are to apply to this company too where relevant. Any limitations on the bank's business as a whole are to apply to the bank and the company together.

The current legislation includes special rules on the *acquisition of property to protect a claim*. These rules are technically complex and entail a substantial administrative burden and so the committee recommends that they be abolished. No special regulation is recommended for holdings of property other than shares and equivalent interests. It is assumed that the management of charges can take place within the frameworks that normally apply to holdings of property and the opportunities available for setting up special-purpose vehicles to this end. The management of



charges is therefore viewed as part of a bank's normal credit operations. Shares and equivalent interests held temporarily in connection with a financial reconstruction or for the purposes of protecting a claim should not be counted as qualified holdings and should therefore be exempt from the general limits on such holdings. The banks are given two alternatives, each with slightly different legal implications, for setting up special-purpose vehicles to deal with charges taken over etc.

The committee recommends that a bank's acquisitions of property should require the consent of the Financial Supervisory Authority if the payment equates to more than 25 per cent of the bank's capital base or more than SEK 100 million. Such consent would be required for the acquisition of all types of property.

---

The committee recommends special rules on a bank's *credit management*.

---

The committee recommends special rules on a bank's *credit management*. Firstly, the composition of a bank's credit portfolio must be such that the bank's total risk exposure does not jeopardise its ability to meet its commitments. Secondly, a bank's credit assessment procedures must be organised in such a way that the person or body charged with considering an application for credit has a sufficient basis on which to assess the risk involved in granting it. This requires both information to be gathered on the customer and knowledge of the bank's internal guidelines and other exposures to the customer and related parties. Decisions on credit applications must also be documented so that the basis and reasons for decisions are recorded. Experience from the last banking crisis shows that documentation was often flawed and sometimes verging on the non-existent. A lack of documentation can complicate supervision and, in extreme cases, criminal investigations and compensation proceedings.


The current legislation contains *insider lending rules* prohibiting the granting of loans on preferential terms to a bank's senior managers and major shareholders. The committee is of the opinion that provisions of this kind promote solidity and the interests of shareholders and other stakeholders in knowing that these insiders are not being given special treatment at the bank's expense. The committee proposes that the scope of these provisions be extended to cover other types of agreement as well as credit agreements. This recommendation will make the provisions easier to apply through the abolition of a number of special rules.

---

The committee is of the opinion that, with one minor exception, the provisions on capital adequacy and large exposures should not be changed in this context.

---

The existing rules on *capital adequacy and large exposures* have formed a key part of the basis of the committee's work and recommendations. The complex and detailed regulatory framework in this area is important for the banks' solidity and risk management. The



committee is of the opinion that, with one minor exception, the provisions on capital adequacy and large exposures should not be changed in this context, partly because their formulation is so closely tied to EEC law and international accords.

The provisions on *banking via agents* in the current Swedish legislation contain special exemptions allowing a bank to conduct banking operations using staff and premises other than its own. The committee recommends that the limiting special rules be abolished. The rapid technological advances under way in the financial services market are making it increasingly inappropriate to tie the banks' hands in this way. The need for consumer protection in this area would better be served through the proposed provision on good banking standards than through precise special rules.

The rules governing the extent to which a bank is able to utilise its buffer capital depend on its corporate form. The committee recommends certain adjustments to the rules on subscribed capital and reserves at members' banks with a view to safeguarding their buffer capital.

#### NEW NAME FOR THE FINANCING OPERATIONS ACT

The committee recommends that the Financing Operations Act be renamed the Financing Business Act to tie in more closely with the terminology used elsewhere.

#### NEW DEFINITION OF LICENSABLE FINANCING BUSINESS


One of the main roles of the financial system is to allocate savings, and an efficient supply of capital is important for the economy as a whole. At present the types of capital supply operation that come under the Financing Operations Act are defined quite broadly in the first instance and then whittled down through a list of exceptions of varying specificity. The committee recommends that financing business be defined in approximately the same way but that the exceptions be made more general and be based more clearly on an assessment of special value and vulnerability. This should reduce the need to update the legislation whenever new technical solutions and products are launched.

The committee proposes that *licensable financing business* be redefined as business that includes commercial operations which have as their purpose the provision of loans or guarantees for loans to the public, the acquisition of claims for financing purposes or the leasing of moveable property. The

---

The committee recommends that the definition of licensable financing business be narrowed through the inclusion of "to the public".

---



committee thus recommends that the definition of licensable financing business be narrowed through the inclusion of “to the public”. The reason for this is that the committee is of the opinion that it is only financing aimed at the public that is of special value. This definition means that non-profit, temporary and similar operations will generally fall outside the regulated area, as will financing through the purchase of financial instruments and financing aimed at limited groups. Exemptions from the licence requirement are made for financing in connection with the sale of property or services, financing at later stages and financing through another company in the same group or grouping of companies. Companies engaging in financing business are termed “credit market undertakings”.

---

The committee recommends that financing business should not be licensable where the undertaking's financing operations are of limited scope.

---

The committee recommends that financing business should not be licensable where the undertaking's financing operations are of limited scope. If the assets attributable to these financing operations as set out in the undertaking's published balance sheet amount to less than SEK 250 million, the business should not be licensable. It is recommended that the same should apply if the undertaking's liabilities do not exceed its capital base by more than SEK 250 million. One condition for this exemption is that the undertaking must not accept callable funds from the public.

Central and local government bodies are *exempt from the licence requirement*, as are undertakings covered by other financial legislation to the extent that they are permitted to engage in financing operations under such legislation.

Since the licence requirement is in some cases dependent on quantitative thresholds, the committee recommends the inclusion of a provision that foils attempts to circumvent the licence requirement by splitting an operation of special value between several different legal entities.

## NEW OPERATING REGULATIONS FOR CREDIT MARKET UNDERTAKINGS

---

The committee believes that the systemic risks are less serious in the financing sector, which justifies somewhat less extensive regulation.

---

The interests that call for special protection in the capital supply system are very similar to those in the payment system. The main difference is that the committee believes that the systemic risks are less serious in the financing sector. This justifies somewhat less extensive regulation, partly because each type of operation must be regulated no more closely than its special value/vulnerability would warrant and partly in the interests of concentrating the





Financial Supervisory Authority's resources on areas that are important for the stability of the financial system.

The committee recommends that a credit market undertaking be required to *tailor the direction and scope of its business to its capital strength*. This is a less exacting version of the proposed solidity provision for the banks. When it comes to risk management and transparency, the same provisions are recommended as for the banks.

The current legislation includes the following provision: "A credit market undertaking's operations shall be conducted in such a manner that public confidence in the credit market is maintained and otherwise in such a manner that its operations may be deemed to be sound." The introduction of the solidity, risk management and transparency provisions for credit market undertakings results in a more expedient regulatory framework than this "soundness rule". Consumers' claims are better protected by the proposed new formulation, while other aspects of consumer protection are best dealt with through the general regulatory framework and the sanctions for which it provides (see "Consumer protection" below). The committee therefore recommends that the current soundness rule be abolished.

The committee recommends the same rules as for the banks when it comes to the right to engage in *non-financial operations* and the regulation of *shareholdings*.

At present the Banking Business Act and the Financing Operations Act contain largely identical provisions on insider lending on preferential terms. The committee recommends that these provisions be excluded from


---

The committee recommends that the insider lending provisions be excluded from the Financing Business Act.

---

the Financing Business Act. In the case of credit market companies, it is proposed instead that the provisions on monetary loans in the Companies Act should apply. However, as an exception to these provisions, the committee proposes that a credit market company be allowed to issue loans to the directors, general manager and other employees of the company or another company in the same group and to certain related parties provided that this is done on the same terms as the company would normally apply. In the case of credit market associations, the committee recommends that the general principles in the Economic Associations Act be applied, which means that there will be no general prohibition on loans.

**THE SUPERVISION OF BANKS AND CREDIT MARKET UNDERTAKINGS**  
The committee's recommendations mean that the operating regulations are to shape the direction and forms of supervision chosen for both banks and credit



market undertakings. The operating regulations derive from assessments of the requirements that must be set if banks and credit market undertakings are to operate in the most appropriate manner. This means that supervision must focus on the areas covered by the operating regulations and must therefore take its lead above all from the introductory provisions on solidity, risk management and transparency.

---

The link-up with the introductory operating provisions allows the rules on supervision to be expressed in general terms.

---

The link-up with the introductory operating provisions allows the rules on supervision to be expressed in general terms. This means that the supervisory authority will be free to decide on important parts of the practical supervisory set-up. The committee has indicated the objectives of supervision, partly through the formulation of the operating regulations, but believes that it is neither possible nor expedient for the legislation to set out more detailed directions. The government may introduce more precise requirements in official instructions and other documents.

---

The committee considers it important to conduct a complete review of the Financial Supervisory Authority's duties.

---

The committee is of the opinion that the stability of the payment system and the credit market is of particular importance to the economy. Besides supervising entities in these areas, the Financial Supervisory Authority has a number of other supervisory duties. The authority also operates with limited resources, not only financial but also in terms of personnel and expertise. The supervision of prioritised areas must be given additional resources. The committee considers it important to conduct a complete review of the Financial Supervisory Authority's duties.

The procedures for dealing with *charter applications* from banks, *licence applications* from credit market undertakings and *ownership issues* need to be adapted to the operating regulations.

Besides the role of supervising whether banks and credit market undertakings are complying with relevant laws and ordinances and with their own articles/bylaws and internal instructions, it is recommended that the Financial Supervisory Authority be made responsible for *promoting a sound development of the banking sector* and the financing sector. In the committee's opinion it is important that the authority monitors developments in these sectors and is thereby able to form an opinion on whether these developments are in line with the intentions behind the legislation.



It is recommended that the Financial Supervisory Authority's duty to *appoint auditors* for all the banks is replaced with the right to do so.

The current sanctions system does not give the Financial Supervisory Authority sufficient scope to intervene effectively. The committee's recommendations give the authority more means of intervention and greater scope to determine which steps are most appropriate

---

The committee's recommendations give the authority more means of intervention and greater scope to determine which steps are most appropriate in a given situation.

---

in a given situation. It is recommended that *warnings* can be used more widely as an alternative to the *revocation of charters and licences*. In the event of minor infringements the authority should be entitled not only to *order corrective action* or *enjoin the execution of decisions* but also to *issue observations*. The authority should also be given the express option of *choosing not to intervene* where an infringement is deemed immaterial or excusable or where corrective action is taken.

Banks and credit market undertakings have an extensive duty of disclosure to the Financial Supervisory Authority. This duty spans various forms of financial information and is of great importance in the authority's supervisory work. The committee does not believe that the late submission of information is normally a type of oversight that warrants intervention using the ordinary sanctions system and recommends instead that banks and credit market undertakings that fail to submit information on time be required to pay a penalty of SEK 100,000.

### A SAFE HAVEN

In formal terms the current legislation gives the banks the exclusive right to accept deposits on account under a specific definition, but in practice this exclusive right has been undermined by phenomena that fall outside this definition. The committee has concluded that the abolition of this exclusive right will promote competition and a broader range of products in the deposit market, giving consumers greater freedom of choice and better service at lower prices.


In the interests of consumer protection there needs to be some regulation of what the committee terms "the acceptance of funds", in other words deposits and similar services. The committee believes it important

---

The committee believes it important for consumers to have access to an effectively risk-free and liquid form of investment – a safe haven.

---

for consumers to have access to an effectively risk-free and liquid form of investment – a safe haven. The ability to invest savings safely is important in providing peace of mind for the individual. The existing deposit guarantee scheme adequately meets the requirements that would be made of such a *safe haven* and so the



committee recommends that the deposit guarantee scheme continue to apply in its existing form, except that it should be extended to cover deposits with credit market undertakings as well as banks and securities companies. Companies providing accounts of the type covered by the guarantee should also have a duty to accept deposits from anyone unless there are good grounds to refuse.

#### DISCLOSURE DUTY

---

The committee recommends the introduction of a disclosure duty for companies that accept uninsured funds.

---

If the deposit guarantee scheme is to play its role properly in providing a safe haven, it must be clear to consumers which forms of deposit are covered and which are not. The committee therefore recommends the introduction of a disclosure duty for companies that accept uninsured funds. This duty will cover companies that offer to accept callable funds from the public which are then available to the creditor at less than one year's notice and are not covered by the deposit guarantee scheme. Information that the guarantee does not apply must be provided when the product is marketed and before a contract is concluded, and must also be printed on statements and similar information concerning the creditor's account. The Consumer Ombudsman and the Financial Supervisory Authority are to monitor compliance with this disclosure duty.

The committee also proposes that banks, credit market undertakings and securities companies that accept funds not covered by the guarantee scheme should be subject to the same disclosure duty.

#### CONSUMER PROTECTION

---

The solidity-oriented legislation proposed by the committee will boost the fundamental level of protection afforded consumers.

---

With many financial services, the fundamental source of consumer protection is the financial stability of the consumer's counterparty. The particular importance of a strong counterparty stems from the fact that many relationships in the financial market are of a long-term nature (eg in the case of loans) or that consumers risk losing money if the counterparty fails (eg in the case of bank deposits). A bank's customers often also become its financiers as a result of their transactions. The solidity-oriented legislation proposed by the committee will therefore boost the fundamental level of protection afforded consumers.

The narrowing of the Financial Supervisory Authority's role recommended by the committee also entails increased consumer protection. The risk of consideration for an institution's solidity being allowed to take precedence over the



interests of the individual consumer will be reduced if the supervision of consumer protection issues is transferred to a different authority with the specific remit of safeguarding consumer interests.

As mentioned earlier, the committee recommends the introduction of a provision that requires the banks to conduct their business in line with good banking standards in a bid to ensure that confidence in the banking market is not jeopardised. This provision is intended to prevent phenomena that run the risk of undermining confidence in the banking market rather than to be applied to individual consumer complaints. Nevertheless this provision does provide substantial protection for consumers as a whole.

One of the areas where the provision on good banking standards is intended to apply is the banks' potential abuse of the fact that their position is generally far stronger than that of individual customers. The standards provision also deals with the problem that customers have less information than the banks on the content of specific products and the relative merits of different products. This information deficit makes it important for the banks to answer questions and deal with complaints from customers expediently. Good banking standards presuppose expedient procedures for dealing with complaints.

The committee is not recommending any changes in the laws in place to protect consumers in areas such as fair contract terms, fair treatment and quality of information, which fall outside the committee's terms of reference. However, the committee believes that it would be appropriate in another context to consider extending some of these laws to cover financial services and the protection of small businesses.

The committee's recommendations are intended to promote greater competition between the various financial services companies. Greater competition (within properly considered legal frameworks) leads to better terms and broader choice for consumers. The committee is of the opinion that more efficient competition is an important factor in improving the position of the consumer.

---

The committee's recommendations are intended to promote greater competition between the various financial services companies.

---



# *The final report of the Banking Law Committee: Public administration of banks in distress (SOU 2000:66)*

## Introduction

---

In this report the committee considers how the government is to deal with banks in distress.

---

up of banking companies in distress to be called public administration. The committee also recommends that a separate government body called the Crisis Management Authority be created to assume overall responsibility for public administration. This report also contains an analysis of the delegation of duties between the Crisis Management Authority, the Financial Supervisory Authority, the Riksbank and the Deposit Guarantee Board.

---

The recommendations in this report are intended to supplement the regulatory and supervisory system put forward in the committee's main report.

---

identified the need to protect the functioning of the financial system as the main reason for banks to be subject to special regulation and special supervision. The banks play a key role in the financial system: they are important for both payment services and the supply of capital to households and businesses. As discussed in the main report, one bank's inability to meet its commitments may cause other banks to encounter problems and so eventually trigger a systemic crisis in which the payment and capital supply systems fail to function properly. The principal purpose of the regulatory and supervisory system recommended by the committee in its main report is to make the banks capable of withstanding disturbances. However, no regulatory or supervisory system can prevent individual banks from running into financial difficulties and so the operating regulations and supervision need to be supplemented with an effective scheme for dealing with troubled banks.

---


Troubled banks must be handled in such a way as to minimise the risk of a systemic crisis.

---

In this report the committee considers how the government is to deal with banks in distress. The committee recommends a special scheme for the reconstruction and winding-

The recommendations in this report are intended to supplement the regulatory and supervisory system put forward in the committee's main report: Regulation and supervision of banks and credit market undertakings (SOU 1998:160). There the committee identi-

Troubled banks must be handled in such a way as to minimise the risk of a systemic crisis. An inadequate scheme which does not sufficiently reduce the risk of such crises may



result in the government, with its ultimate responsibility for the stability of the financial system, finding itself in an unfavourable negotiating position where the troubled banks are able to secure financial support on unreasonably advantageous terms on account of the government having no credible alternative. Government support measures that benefit the owners and creditors of the banks may reduce the perceived downside potential of high-risk banking business and so decrease the owners' aversion to risk and the creditors' incentive to assess the risk inherent in a bank's business, leading to a less stable financial system and substantial costs to the taxpayer.

An effective scheme for dealing with banks in distress gives the banks a greater incentive to avoid problems and reduces contagion risk in the event of one bank running into difficulties. A poorly designed scheme or uncertainty about how a troubled bank will be dealt with on the other hand may lead banks or their owners to speculate about the possibility of escaping problems through government support on favourable terms. The banks' behaviour under normal circumstances is also affected by expectations of how banks in distress will be handled by the government. It is therefore important to establish a properly designed scheme in advance and not simply wait until problems arise.

## Shortcomings in the existing set-up


The existing rules on dealing with banks in distress have a number of shortcomings, as revealed by both the committee's analysis and experience from the financial crisis. The

---

The rules in force today are largely the same as those that applied before the financial crisis.

---

rules in force today are largely the same as those that applied before the financial crisis. Under these rules, a bank that no longer meets the statutory capital adequacy criteria is required to take corrective action, which can take one of two forms: either new capital is injected or the scope and risk exposure of its business is adjusted in line with the capital available. Attracting new capital can be difficult if there is uncertainty about the value of a bank, and rapidly scaling down the balance sheet can be costly. If a bank fails to restore its capital adequacy, there is ultimately only one option, which is to revoke the bank's charter. This in turn means that the bank must be wound up. If it cannot be wound up in any other way, the bank will have to be liquidated in line with the provisions of the Companies Act. Banks in liquidation normally soon run into liquidity problems and so become insolvent, and this runs the risk of triggering a systemic crisis. Both bankruptcy and liquidation are therefore best avoided in the case of banks whose prob-



lems could affect the stability of the system until this risk to the system has abated. During the financial crisis it was not considered appropriate to let any of the banks go into liquidation: instead the government deemed it necessary to intervene with special measures. At first this intervention had to take place on an ad hoc basis as there were no rules in place for a situation of this kind. When it was clear that the entire financial system was in crisis and the government had issued its bank guarantee, a special crisis management body called the Bank Support Authority was set up. To prevent the guarantee from putting the government in a situation where it was open to blackmail, a number of special emergency provisions were introduced. These provisions were linked to the guarantee itself and ceased to apply at the same time as the guarantee in 1996.

---

A deposit guarantee scheme has been introduced but this should be viewed primarily as a form of consumer protection and has little bearing on system stability.

---

As mentioned above, the provisions in place today are largely the same as when the financial crisis broke out. A deposit guarantee scheme has been introduced but this should be viewed primarily as a form of consumer protection and has little bearing on system stability. There is no longer a crisis management body: the Bank Support Authority has been turned into the Deposit Guarantee Board, whose role is restricted to managing the deposit guarantee and investor compensation schemes. The conclusion must therefore be that the need for an effective set-up for dealing with banks in distress is as great today as it was before the banking crisis.

## Public administration

One of the main problems with the current system is that there is no credible way of dealing with system-critical banks that run into financial difficulties. The committee believes that the existing regulatory framework cannot be modified to deal with this problem. The Corporate Reconstruction Act, which is not currently applicable to the banks, requires that a company can be reorganised without a significant impact on other companies or the financial system. However, when it comes to banks, the suspension of payments so fundamental to this act could very well spark off a systemic crisis. The act also requires the voluntary participation of the troubled company, which is not appropriate when it comes to system-critical banks. Nor can the Bankruptcy Act be applied directly to system-critical banks because a bankruptcy order could also trigger a systemic crisis. Thus neither the Bankruptcy Act nor the Corporate Reconstruction Act gives the government scope to look after society's interests in the functioning of the financial system.





For the reasons cited above, the committee recommends a special scheme for the reconstruction and winding-up of banks to be known as *public administration*. The main purpose of public administration is to prevent systemic crises at low cost to the economy, but the scheme is also intended to provide a reconstruction procedure for banks that do not pose a threat to the system. The committee recommends that a separate government body called the *Crisis Management Authority* be created with the primary role of dealing with banks subject to public administration.

---

The committee recommends a special scheme for the reconstruction and winding-up of banks to be known as *public administration*.

---

According to the proposals, it is Stockholm City Court that decides about public administration order in response to a petition from the Crisis Management Authority. An order will affect the bank in question in many different ways. A special set of rules will now apply. These include provisions that specify explicitly the legal implications of the order and how the business may then be run. It also entitles the Crisis Management Authority to assume control of the bank's affairs in various respects, including decisions on the direction of the business, the composition of the board and management, the organisation of the bank, the sale or winding-up of all or parts of its business, and mergers. The authority is also entitled to take decisions in various ways on a bank's fulfilment of its obligations through orders that are directly binding on the bank.

### CRITERIA FOR PUBLIC ADMINISTRATION

Public administration is intended not to replace but to supplement the liquidation procedure set out in company law and the insolvency procedure set out in bankruptcy law. The criteria for public administration are that the bank in question is either insolvent (by the committee's definition) or that there are grounds to revoke its charter. The criteria are formulated such that a bankruptcy or compulsory liquidation order is always an alternative to public administration. The idea is that a bank is to be placed into public administration where this is necessary in the interests of system stability or where reconstruction is warranted – otherwise the bank is to be declared bankrupt or put straight into liquidation. It is the Crisis Management Authority that will decide whether or not reconstruction is a viable option; a bank's shareholders and creditors cannot therefore be sure that the bank will be put into administration if it runs into trouble.

---

Public administration is intended not to replace but to supplement the liquidation procedure set out in company law and the insolvency procedure set out in bankruptcy law .

---



## GOVERNMENT CONTROL

---

The recommendation means that the Crisis Management Authority will assume control of the running of the business of a bank in public administration by representing all of its shares at general meetings.

---

As mentioned above, public administration is intended to be used as a tool for the government to gain control over individual troubled banks. The idea is to ensure that the government's responsibility for the financial system does not put it in a negotiating position with the bank's managers and owners that raises blackmail and moral hazard issues. The government is to be able to take control of a bank's business without taking over ownership of the bank: the committee's recommendations do not give the government the option of a compulsory takeover of a bank's shares. The recommendation means that the Crisis Management Authority will assume control of the running of the business of a bank in public administration by representing all of its shares at general meetings. It is therefore a fundamentally different solution to bankruptcy and liquidation where a receiver/liquidator takes control of the business in parallel with the regulatory system set out in company law. The Crisis Management Authority will actually work inside the company law system, so facilitating the continued operation of the business and increasing in turn the chances of reorganising the bank and returning it to normal operation. Besides the control exercised through the general meeting, the Crisis Management Authority may also exert control over the bank through various decisions binding by public law.

As a result of EEC legislation, the committee proposes that decisions on new issues of shares and reductions in share capital should be excluded from the Crisis Management Authority's powers and that shareholders should retain the right to decide on such matters. However, the committee believes that the government should press for a change in EEC law to allow the authority to pass resolutions in these areas via the general meeting, since a new issue may constitute an important part of a reconstruction package. In the meantime the option in EEC law of granting a court the jurisdiction to rule on issues concerning reductions in share capital should be used. The committee therefore recommends that the Crisis Management Authority be entitled to request a reduction in the share capital of a bank in administration within the framework of the ongoing court proceedings concerning the public administration order.



## GOVERNMENT GUARANTEE

One goal of public administration is for it to be possible to continue running the business so as to facilitate its reconstruction. Since a bank will generally be in poor financial health when the public administration order is issued, it is important that the order is perceived as a positive move by the bank's counterparties and not as a warning shot. To ensure that this is the case, the committee proposes that the law provides for the issue of a government guarantee that a bank in public administration will meet all commitments arising during the life of that guarantee.

---

The committee proposes that the law provides for the issue of a government guarantee that a bank in public administration will meet all commitments arising during the life of that guarantee.

---

To ensure that this is the case, the committee proposes that the law provides for the issue of a government guarantee that a bank in public administration will meet all commitments arising during the life of that guarantee. The possible implications of such a guarantee for central government finances mean that the government itself should take the final decision on its issue following a recommendation from the Crisis Management Authority.


One of the guiding principles for public administration is that the design of the procedure must make it credible that the government will not protect all of a bank's creditors from capital losses if the bank runs into difficulties. It is important that lenders know that lending money to a bank is associated with a certain degree of risk under normal circumstances: this will encourage them to assess the level of risk to which the bank is exposed. For this reason it is recommended that the guarantee should cover only new commitments arising after the guarantee is issued. It is also proposed that the guarantee should not cover commitments arising after the bank is released from public administration since a government guarantee without government control would give rise to moral hazard. Since a bank in administration cannot be allowed to return to normal operation unless it meets all the requirements usually made of banking business, the guaranteed claims should no longer be covered by the guarantee once the public administration order is lifted. However, to increase the chances of sourcing suitable external financing and minimise transition problems, the committee recommends that these claims continue to be guaranteed for a transitional period of three months after the bank is released from public administration. This solution allows creditors, through the terms of their contracts, to ensure eligibility for compensation under the guarantee in connection with the lifting of the public administration order.

It is recommended that the guarantee be general in the sense that it should cover all commitments arising during its life, other than commitments already guaranteed by

---

It is recommended that the guarantee be general in the sense that it should cover all commitments arising during its life.

---



the government through the deposit guarantee scheme. The committee is proposing an arrangement whereby the bank in administration will handle the payment of the guaranteed debts. The same arrangement can be used for deposits covered by the deposit guarantee scheme, so that insured depositors can continue to withdraw money from their accounts as usual even though the bank has suspended the payment of its other commitments (see below). This kind of arrangement enables the bank to continue to provide account services, so upholding the value of the bank, facilitating its reconstruction and providing better protection for the depositor.

When a government guarantee is issued, the bank will have to pay a premium for the guarantee and the government will gain the right of recourse in respect of payouts under the guarantee.

---

One of the key goals of public administration is to create breathing space for banks in distress in a way that does not simply involve injections of government money.

---

One of the key goals of public administration is to create breathing space for banks in distress in a way that does not simply involve injections of government money. The proposals for government control and the government guarantee for new commitments

will make it possible to continue running a bank during a transitional period while its problems are being resolved without it meeting the statutory capital adequacy requirements.

## PUBLIC ARRANGEMENTS AND ENFORCED COMPOSITIONS


To facilitate solutions that do not involve the injection of government money, the committee recommends that the public administration procedure should include provisions on public arrangements and enforced compositions. In practice it will be almost impossible to achieve a sustainable reconstruction without government capital unless the reconstruction package involves scaling down the bank's "old" liabilities in some way. This composition may be reached through informal negotiation between the parties concerned, but the chances of obtaining a positive result in this way will depend to some extent on the involuntary solutions that can be called on.

---

The committee recommends that the provisions on public arrangements in the Corporate Reconstruction Act should also apply to public administration.

---

The committee recommends that the provisions on public arrangements in the Corporate Reconstruction Act should also apply to public administration, subject to a number of modifications. These provisions mean that a minority of creditors may be required to



reduce their claims in the same way as the majority has agreed to do. The argument in favour of a scheme like this is the same with public administration as with reconstruction, namely that it prevents individual creditors from gaining a disproportionately strong position in composition negotiations. However, when it comes to a bank whose reconstruction is in the government's interests, there is a risk that the bank's creditors may refuse to vote in favour of an arrangement in a bid to exploit the possibility that the government will be forced to inject capital without any equivalent commitment on the part of creditors. To prevent creditors from being in a position to blackmail the government, the latter should have the option of enforcing a composition for claims against a bank in administration. The committee therefore recommends that the Crisis Management Authority be entitled to petition the court for an enforced composition order in connection with its petition for a reduction in the bank's share capital.

An enforced composition may be applied only where this is necessary to bring the bank's liabilities in line with the value of its business, and should be subject to the additional conditions that the bank's share capital must first be written down to zero and the composition should reflect creditors' priority. Only debts that are eligible for a public arrangement can be subject to an enforced composition.

### SUSPENSION OF PAYMENTS


One important principle underlying the design of the public administration rules is that a bank's losses should in the first instance be borne by its shareholders and only thereafter by creditors with claims dating from before the public administration order was issued. The latter should then bear any remaining losses in line with the principles set out in general bankruptcy law.

---

To prevent some creditors from receiving full payment at the expense of other creditors, it is recommended that public administration should include provisions on the suspension of payments.

---

To prevent some creditors from receiving full payment at the expense of other creditors, it is recommended that public administration should include provisions on the suspension of payments. The proposals mean that the Crisis Management Authority will decide on the suspension of payments and that the bank in question will then be bound to cease all payments in respect of commitments predating the suspension of payments. The Crisis Management Authority is to suspend a bank's payments if it is not in the common interests of creditors for the bank to continue meeting its commitments. If it is not possible to suspend payments *for system stability reasons*, the Crisis Man-



agement Authority is to delay the suspension of payments on these grounds. The government should then be responsible for ensuring that payments effected during this *delay in the suspension of payments* do not harm other creditors, in other words those who are not paid before payments are eventually suspended. The committee recommends a procedure that will ensure that these other creditors are not harmed by the failure to suspend payments.

Even where payments have been suspended, the Crisis Management Authority may decide that the bank should meet a number of its commitments if the benefit to creditors exceeds the cost. The authority should also be entitled to decide that the bank should execute specific payments to maintain system stability. If this is not in the common interests of creditors, the government is to ensure that these payments are not made at the expense of the creditors who are not the beneficiaries.

According to the proposals, the public administration order will not automatically trigger the suspension of payments, since this may have implications for a bank's business which will make it harder or even impossible to reorganise the bank. The idea is that public administration can also be called on at a relatively early stage before the problems become so great that not all creditors can be paid in full. In such cases it is not necessary to suspend payments to protect creditors from unequal treatment. System stability considerations may also make it inappropriate or impossible to suspend a bank's payments since one bank's failure to meet its commitments may cause problems for other banks too.

---

It is recommended that it be possible to restrict the scope of a suspension of payments to subordinated debts.

---

It is recommended that it be possible to restrict the scope of a suspension of payments to subordinated debts. The Crisis Management Authority should be required to suspend the payment of subordinated debts if continued payments are not in the common interests of creditors. It would not therefore be possible to delay the suspension of payments in respect of subordinated debts in the interests of system stability. Payments of subordinated loans can generally be suspended without any impact on the system or serious consequences for the operation of the bank's business. Where there is reason to believe that ordinary debts will be paid in full, it will be sufficient to suspend payments on subordinated debts to protect creditors. Failure to suspend payments on subordinated loans could make system protection unnecessarily expensive. The committee is of the opinion that there will generally be such uncertainty about a bank's value when a public administration order is issued that the payment of subordinated debts should be suspended. Should it, against all expectations, be necessary



to pay some subordinated debts in the interests of system stability, decisions are to be taken on a case-by-case basis.

A suspension of payments should not apply to deposits covered by the government deposit guarantee scheme, as the bank will then be able to continue to provide deposit and payment services, which should facilitate

---

A suspension of payments should not apply to deposits covered by the government deposit guarantee scheme.

---

its reconstruction. This solution also offers better consumer protection: it could be inconvenient for many depositors to be denied access to their deposits even if this is only for a few days. This improvement in consumer protection will in turn reduce the risk of depositors cleaning out their accounts out of fear that the bank will be sent into public administration. The Deposit Guarantee Board will be responsible for ensuring that payments to depositors do not harm other creditors, using a method similar to that for a delayed suspension of payments.

#### RELEASE FROM PUBLIC ADMINISTRATION

According to the proposals, a bank will be released from public administration when there are no longer grounds to keep it there. If a bank meets all of the statutory requirements for banking business and is expected to

---


A bank may not be kept in public administration for more than two years unless there are special reasons to do so.

---

be able to handle its funding on its own two feet, the public administration order is to be lifted and the bank allowed to operate normally. The public administration order may also be lifted if the bank is subject to a bankruptcy or liquidation order following a petition from the Crisis Management Authority. A bank may not be kept in public administration for more than two years unless there are special reasons to do so. To avoid the risk of the procedure continuing for longer than necessary and the associated drawbacks this can have for the bank's owners, shareholders representing at least ten per cent of the company's shares are to be entitled to request the lifting of the order six months after its issue.

## The Crisis Management Authority

As mentioned earlier, the committee recommends that a separate government body called the Crisis Management Authority be created to assume overall responsibility for public administration. This authority is also to be able to broker informal reconstructions outside public administration and assist with contacts



---

The committee recommends that a separate government body called the Crisis Management Authority be created to assume overall responsibility for public administration.

---

between banks in distress and potential financiers. In other words the authority is to be able to serve as an intermediary and facilitator. The committee believes that these roles are not suitable for the Financial Supervisory Authority, the Riksbank or the Deposit Guarantee Board since this may conflict with their primary duties. The creation of a separate Crisis Management Authority will therefore enable the various bodies to concentrate on their primary duties.

The committee is of the opinion that under normal circumstances it will be sufficient for the board of the Crisis Management Authority to meet regularly to discuss developments in the financial markets and prepare for crises of various kinds. It may be appropriate for the board to have some form of strictly limited secretariat function at its disposal. In its work the board should have access to information flows and expertise at the Financial Supervisory Authority and the Riksbank, which can be achieved by having these bodies represented on the board. In the event of trouble at a bank, the Crisis Management Authority must be able to gain rapid access to the resources it needs (hire consultants, take on additional staff and so on) to rise to the challenges thrown up by the new situation.

---

One of the Crisis Management Authority's roles will be to decide whether a bank in distress should be placed into public administration or whether a bankruptcy or liquidation order would be a more appropriate solution.

---

One of the Crisis Management Authority's roles will be to decide whether a bank in distress should be placed into public administration or whether a bankruptcy or liquidation order would be a more appropriate solution. This will involve assessing whether the bank could pose a threat to the system or whether there is a risk of extensive capital destruction.

This assessment will require in-depth expertise in the financial system and will be highly dependent on the prevailing economic climate, the state of the banking market and international conditions. At times when there is widespread turbulence in the financial markets and several banks are candidates for public administration, it is important that a combined assessment is made by the authority. The Crisis Management Authority should of course consult the Financial Supervisory Authority and the Riksbank on these issues. This will happen naturally if these two bodies are represented on the authority's board, and it can be assumed





that there will be an extensive and open flow of information between the three in any case.

The most important role of the Crisis Management Authority will be to assume control of a bank that has been put into public administration and determine the direction of the reconstruction process. Once the order has been issued, the authority must quickly gain a clear picture of the bank's situation, where this has not already been done, and may need to replace the bank's board and general manager. Consultants may also need to be hired to assess the bank's financial position. To ensure that replacement managers and consultants can be recruited quickly, the authority should prepare in advance by sounding out suitable candidates. Immediately after the public administration order is issued, the authority must also reach a decision on whether the bank's payments are to be suspended and whether a guarantee should be issued. Work on reconstruction will then ensue, including negotiations on the sale of parts of the business and on fresh financing or even decisions to wind up all or part of the business.

---

The most important role of the Crisis Management Authority will be to assume control of a bank that has been put into public administration and determine the direction of the reconstruction process.

---

In brief the committee has reached the following conclusions on the need to set up a permanent crisis management body:

The continued and uninterrupted operation of a bank will normally be essential when it comes to managing system risks and reorganising the bank without unnecessary capital destruction. This argument forms the background to the committee's recommendations on public administration and a permanent crisis management body. As stated in the report, public administration is a flexible but relatively complex instrument for preventing various different types of system-critical crisis and for winding up or reorganising banks in distress.

The committee is of the firm opinion that the proposed procedure requires a permanently instituted crisis management body so that it:

---

The committee is of the firm opinion that the proposed procedure requires a permanently instituted crisis management body.

---

- is fully versed in the relevant legislation
- receives a constant flow of information from the Financial Supervisory Authority, the Riksbank etc.
- is prepared for various situations that may require extremely rapid decisions and actions.



## Delegation of duties between the relevant public bodies

One advantage of a separate scheme for the reconstruction and winding-up of banks and the creation of a separate crisis management body is that the Financial Supervisory Authority, the Riksbank and the Deposit Guarantee Board can be given clear roles in the event of a crisis at one or more banks.

---

*The Financial Supervisory Authority's*  
principal role is to supervise the  
individual banks.

---

*The Financial Supervisory Authority's* principal role is to supervise the individual banks. One key element in its supervisory duties is to identify problems at a bank at an early stage,

since capital problems and certain other types of problem will ultimately lead to the bank's charter having to be revoked. Should it appear that the bank is unable to deal with these problems on its own, the Financial Supervisory Authority is to consult the Crisis Management Authority, which may then get involved in its role of facilitator. In view of its continuing supervisory duties, the Financial Supervisory Authority should not be required to play this role because it should not be given any responsibility for the solutions in which these negotiations result. According to the proposals, the Crisis Management Authority must consult the Financial Supervisory Authority and the Riksbank before submitting a petition for the bank to be placed into public administration.

It is important that the delegation of duties between the Financial Supervisory Authority and the Crisis Management Authority is such that their respective areas of responsibility do not overlap and that no gaps are left between them. A bank in public administration must be subject to ordinary supervision. Even when the Crisis Management Authority is leading reconstruction talks, the Financial Supervisory Authority's involvement should still be limited to ordinary supervision. However, close communication between the two bodies will of course be required in such cases.

---

*The Riksbank's* role is to promote  
liquidity as part of its responsibility  
for a stable payment system.

---

*The Riksbank's* role is to promote liquidity as part of its responsibility for a stable payment system. Large parts of the banks' liabilities can be called in immediately or have a very

short maturity and so uncertainty about a bank's solvency can quickly lead to an acute need for liquidity. At the same time large parts of the banks' assets have no secondary market and so a bank hit by a lack of confidence will generally be unable to meet its liquidity needs by quickly selling off assets. In a fire sale the bank may also have to accept prices well below book value. Prophecies about a



bank's mooted insolvency can therefore become self-fulfilling. To prevent perfectly sound and viable banks from becoming insolvent on account of question marks over their ability to meet their commitments, banks with liquidity problems are able to turn to the Riksbank for loans on special terms known as emergency credit.

The reasons for a scheme involving the central bank as the lender of last resort is primarily to head off systemic risks but also to prevent unnecessary destruction of capital. It is also important that emergency credit is not used as a life support machine for banks that are no longer viable. The Riksbank should therefore grant emergency credit only if it believes that a bank's liquidity problems are attributable to unfounded doubts about its financial position or that the bank will soon overcome its problems. However, to prevent a bank from being forced to suspend payments before a public administration order can be obtained and implemented, the Riksbank should prop up a bank until a decision on the order is made. The Riksbank should therefore consult the Crisis Management Authority before refusing to grant emergency credit.

It should be possible for the Riksbank to issue emergency credit to banks in public administration. Where a government guarantee has been issued for a bank's debts, there is no reason for the Riksbank to refuse emergency credit. It should therefore be possible to assume that the Riksbank will facilitate the work of the Crisis Management Authority by issuing emergency credit to banks in public administration wherever necessary.


*The Deposit Guarantee Board's role is to manage the deposit guarantee and investor compensation schemes. The government is a major underlying creditor of all the banks,*

---

*The Deposit Guarantee Board's role is to manage the deposit guarantee and investor compensation schemes.*

---

primarily through the deposit guarantee scheme, and so the committee recommends that the reconstruction of banks in distress be promoted by allowing the Deposit Guarantee Board to represent the government as a creditor in negotiations on arrangements. In this capacity the board must take into account only the potential cost to the deposit guarantee scheme and not the impact on the financial system. In other words the board would be able to agree to (vote for) an arrangement only if it believes that this will reduce the cost to the guarantee scheme. The chances of negotiating an arrangement would be significantly reduced without the involvement of the Deposit Guarantee Board. Deposits covered by the government deposit guarantee scheme generally account for a substantial part of a bank's funding and so other creditors would have to bear a disproportionately heavy burden if the board was not permitted to participate. For



the same reason the board is to be responsible when it comes to adjusting the value of guaranteed deposits in the event of an enforced composition for unsecured claims.



# Notices

## Reorganisation at the Riksbank

The Riksbank has been reorganised to focus its operations more clearly on the objectives and duties assigned to it in the Riksbank Act. Responsibility for the Riksbank's various operations has been clarified and its organisation and management have been made more efficient.

The activities of five former departments – Economics, Monetary & Exchange Rate Policy, Payment System, Cashiers, and Financial Statistics – have been assigned to three new, larger departments: Financial Stability Department, Market Operations Department, and Monetary Policy Department.

Together with mergers on the administrative side, this has served to reduce the number of departments at the bank. The new organisation came into effect on 1 June 2000.


The *Financial Stability Department* is responsible for monitoring and analysing payment system stability and for compiling and publishing financial market statistics. It is headed by Martin Andersson.

The *Market Operations Department* manages the Riksbank's foreign reserves and the RIX payment system, implements monetary and exchange rate policy and is responsible for the supply of notes and coins. It is headed by Christina Lindenius.

The *Monetary Policy Department* is responsible for monitoring and analysing monetary stability besides compiling and publishing balance of payments statistics. It is headed by Claes Berg.

Organisation & Administration, Personnel, Planning & Accounting, and Administrative Staff, have merged to form a new *Administration Department* headed by Agneta Rönström.

The remaining departments – Secretariat of the Executive Board, Informa-



tion, International, IT, Risk Management, Research and Internal Auditing – are unchanged.

The above has led to a number of changes in the drafting responsibilities of the members of the Executive Board. The new arrangement is presented on the Riksbank's website ([www.riksbank.se](http://www.riksbank.se)) under the heading Riksbank/Organisation.

## New targeted information on Riksbank website

The Riksbank has created a new area on its website ([www.riksbank.se](http://www.riksbank.se)) dedicated to counterparties and RIX participants.

The area includes information on the securities accepted by the Riksbank as collateral and on the criteria set by the Riksbank for counterparties (primary dealers) in the money and foreign exchange markets and for participants in the RIX payment system.

The area also features statistics on turnover in the foreign exchange market and the money and bond market and on bids and allotments in the main refinancing repos.


## National Debt Office to set discount rate

The Swedish National Debt Office took over the Riksbank's role of setting and publishing the official discount rate with effect from 1 July 2000. Information on the discount rate will now be available on the National Debt Office's website ([www.rgk.se](http://www.rgk.se)), although historical data will also be available on the Riksbank's website ([www.riksbank.se](http://www.riksbank.se)) for a transitional period.

The discount rate is exclusively a reference interest rate and has no bearing on monetary policy. It is calculated as an average of the daily market rates during the previous calendar quarter for six-month treasury bills and five-year government bonds (based on daily fixing) less 2.5 percentage points and rounded to the nearest whole or half percentage point.

## The Riksbank signs new primary dealer agreement with Nordbanken and Unibank

Nordbanken AB (publ) and Unibank A/S have both been primary dealers in the money and bond market and the foreign exchange market. Now that they are part of the same group, Nordic Baltic Holding (currently being renamed), the



Riksbank has signed a new single primary dealer agreement for the money and bond market with both Nordbanken and Unibank to replace the previous separate agreements with each institution. The new agreement entered into force on 3 July 2000.

The existing primary dealer agreements with Nordbanken and Unibank for the foreign exchange market are unchanged for the time being.

There are twelve primary dealers in the foreign exchange market: ABN AMRO Bank NV, Amsterdam; Chase Manhattan Bank NA, London; Citibank N.A., London; Crédit Agricole Indosuez, London; Den Danske Bank A/S, Copenhagen; FöreningsSparbanken AB; HSBC Midland, London; Nordbanken AB; SEB; Svenska Handelsbanken; UBS AG, London and Zurich; Unibank A/S, Copenhagen.

There are seven primary dealers in the money and bond market: ABN AMRO Bank N.V., Stockholm; Danske Bank Consensus; E. Öhman J:or Fondkommission AB; FöreningsSparbanken AB; Nordbanken AB and Unibank A/S, Stockholm and Copenhagen; SEB; Svenska Handelsbanken.

## Executive Board meets outside Stockholm

The Executive Board of the Riksbank has decided to hold some of its meetings outside Stockholm. The idea is to visit different parts of Sweden as a group, sounding out opinions on the Riksbank's activities and discussing the economy with representatives of industry and society in the provinces.

The Board's meeting of 7 September 2000 was held in Luleå.

## Improvements to current banknotes

At its meeting of 31 August the Executive Board decided that Sweden's existing 100 kronor and 500 kronor notes should be replaced with upgraded versions to raise standards of security.

At its meeting of 8 September the General Council decided on the design of the notes on the basis of a proposal from Tumba Bruk and the Riksbank.

The decisions of the Executive Board and General Council followed extensive consultation with representatives of the banks, post office, retailers and manufacturers/suppliers of dispensing machines.

The target for the implementation schedule is for the new notes to be ready for introduction in September/October 2001.



# Monetary policy calendar

1997-01-02 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent as of 3 January 1997.

1997-04-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent (unchanged).

1997-07-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent (unchanged).

1997-10-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent (unchanged).

1997-12-11 The *fixed repo rate* is increased by the Riksbank Governor from 4.10 to 4.35 per cent as of 17 December 1997. Due to the Christmas and New Year holidays, the repo rate set on 16 December will apply for four weeks until 14 January 1998.


1998-01-02 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent (unchanged).

1998-04-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.5 per cent (unchanged).

1998-06-04 The *fixed repo rate* is lowered by the Riksbank Governor from 4.35 per cent to 4.10 per cent as of 9 June 1998.

1998-07-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 2.0 per cent as of 2 July 1998.





1998-11-03 The *fixed repo rate* is lowered by the Riksbank Governor from 4.10 per cent to 3.85 per cent as of 4 November 1998.

1998-11-12 The Riksbank lowers its *deposit and lending rates*, in each case by 0.5 percentage points, as of 18 November 1998, thereby setting the deposit rate at 3.25 per cent and the lending rate at 4.75 per cent.

1998-11-24 The *fixed repo rate* is lowered by the Riksbank Governor from 3.85 per cent to 3.60 per cent as of 25 November 1998.

1998-12-15 The *fixed repo rate* is lowered by the Riksbank Governor from 3.60 per cent to 3.40 per cent as of 16 December 1998.

1999-01-04 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 1.5 per cent as of 5 January 1999.

1999-01-05 The *fixed repo rate* is confirmed by the Riksbank Governor at 3.40 per cent. The decision is extended on 29 January 1999 to apply until 17 February 1999.

1999-02-12 The *fixed repo rate* is lowered by the Riksbank Governor to 3.15 per cent as of 17 February 1999.


1999-02-12 The Riksbank 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.

1999-03-25 The *fixed repo rate* is lowered by the Riksbank Governor from 3.15 per cent to 2.90 per cent as of 31 March 1999.

1999-04-01 The *reference* (official discount) *rate* is confirmed by the Riksbank Governor at 1.0 per cent as of 6 April 1999.

1999-10-01 The *reference* (official discount) *rate* is confirmed by the Riksbank at 1.5 per cent as of 4 October 1999.

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.

2000-02-03 The *repo rate* is increased by the Riksbank from 3.25 per cent to 3.75 as of 9 February 2000.

2000-04-03 The *reference* (official discount) *rate* is confirmed by the Riksbank at 2.5 per cent as of 4 April 2000.



# Statistical appendix

Statistics from Sveriges Riksbank are to be found on the Internet (<http://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 homepage of the International Monetary Fund, IMF (<http://dsbb.imf.org>). Dates of publication can also be obtained from the Information Centre at Sveriges Riksbank.

Daily capital market interest rates (Table 13), daily overnight and money market interest rates (Table 14) and daily krona exchange rates (Table 16) can be ordered from the Information Centre at Sveriges Riksbank via e-mail: [info@riksbank.se](mailto:info@riksbank.se), fax: +46 8 787 05 26 or phone: +46 8 787 01 00.

1	Riksbank's assets and liabilities . . . . .	101
2	Money supply . . . . .	102
3	Interest rates set by the Riksbank . . . . .	103
4	Capital market interest rates . . . . .	103
5	Overnight and money market interest rates . . . . .	104
6	Treasury bills and selected international rates . . . . .	105
7	Krona exchange rate: TCW-weighted index and selected exchange rates . . . . .	106
8	Nominal effective exchange rate . . . . .	107
9	Forward foreign exchange market . . . . .	107



## 1

## Riksbank's assets and liabilities

## Assets. Period-end stock figures. SEK million

		Foreign exchange	Government securities	Lending to banks	Fixed- assets	Other	Total
1999	June	137 691	33 163	2 412	1 140	39 344	213 756
	July	141 359	32 712	65	1 140	36 802	212 085
	Aug	152 249	32 660	117	1 138	32 869	219 042

		Gold	Government securities	Lending to monetary policy counterparts	Receivables in foreign currency	Other	Total
	Sept	13 834	31 932	31 122	136 565	3 053	216 506
	Oct	13 834	31 728	31 929	135 222	2 220	214 933
	Nov	13 834	31 579	27 577	143 963	1 647	218 600
	Dec	14 774	28 998	45 633	137 967	1 393	228 765
2000	Jan	14 774	29 584	38 039	132 133	3 164	217 694
	Feb	14 774	28 833	39 558	126 231	2 984	212 380
	March	14 774	27 333	37 591	134 970	1 376	216 040
	April	14 774	27 087	35 410	139 563	2 817	219 651
	May	14 774	24 675	27 158	139 493	1 825	207 925
	June	14 774	23 672	34 045	133 170	1 979	207 640
	July	14 774	22 935	40 460	126 133	1 397	205 699
	Aug	14 774	22 691	38 197	132 165	1 933	209 760

## Liabilities

		Notes and coins circulation	Riksbanks- liquidity bills	Bank deposits in the Riksbank	Capital liabilities	Other	Total
1999	June	83 024	–	2 301	60 487	67 944	213 756
	July	83 950	–	145	60 487	67 503	212 085
	Aug	84 525	–	3 792	60 487	70 238	219 042

		Notes and coins in circulation	Capital liabilities	Debts to monetary policy counterparts	Debts in foreign currency	Other	Total
	Sept	85 070	60 487	97	14 395	56 457	216 506
	Oct	86 161	60 487	61	11 421	56 803	214 933
	Nov	88 375	60 487	86	12 113	57 539	218 600
	Dec	98 450	60 487	4 457	10 173	55 198	228 765
2000	Jan	90 463	60 487	469	9 616	56 659	217 694
	Feb	88 257	60 487	392	6 507	56 737	212 380
	March	88 737	60 487	454	9 185	57 181	216 044
	April	89 456	60 487	55	10 261	59 392	219 651
	May	89 202	63 466	56	9 186	46 015	207 925
	June	89 044	63 466	114	8 092	46 924	207 640
	July	88 355	63 466	73	6 295	47 510	205 699
	Aug	88 947	63 466	237	7 731	49 379	209 760

## 2 Money supply

### End-of-month stock

	SEK million		Percentage 12-month change		
	M0	M3		M0	M3
1997					
Jan	67 503	791 513	Jan	5.3	7.4
Feb	67 490	783 635	Feb	5.8	7.4
March	68 683	807 482	March	7.4	6.5
April	67 473	788 247	April	5.4	4.3
May	67 527	794 077	May	5.1	4.1
June	68 101	807 112	June	4.7	5.3
July	66 763	791 753	July	5.0	3.2
Aug	68 623	804 033	Aug	4.0	4.6
Sept	68 118	799 854	Sept	3.7	2.1
Oct	68 556	799 604	Oct	5.7	3.4
Nov	69 762	807 415	Nov	4.6	1.3
Dec	74 380	826 242	Dec	3.0	1.3
1998					
Jan	70 751	821 712	Jan	4.8	3.8
Feb	70 434	806 800	Feb	4.4	3.0
March	69 560	802 877	March	1.3	-0.6
April	70 181	807 368	April	4.0	2.4
May	70 783	814 796	May	4.8	2.6
June	71 118	829 968	June	4.4	2.8
July	71 369	835 079	July	6.9	5.5
Aug	73 042	835 199	Aug	6.4	3.9
Sept	71 954	838 568	Sept	5.6	4.8
Oct	73 041	846 579	Oct	6.5	5.9
Nov	73 929	852 805	Nov	6.0	5.6
Dec	78 139	843 416	Dec	5.1	2.1
1999					
Jan	74 940	855 180	Jan	5.9	4.1
Feb	74 621	853 298	Feb	5.9	5.8
March	75 302	853 557	March	8.3	6.3
April	75 533	861 790	April	7.6	6.7
May	76 532	868 965	May	8.1	6.6
June	76 413	879 740	June	7.4	6.0
July	77 050	872 884	July	8.0	4.5
Aug	78 080	889 817	Aug	6.9	6.5
Sep	78 479	900 077	Sept	9.1	7.3
Oct	79 413	930 834	Oct	8.7	10.0
Nov	80 681	915 960	Nov	9.1	7.4
Dec	87 510	926 983	Dec	12.0	9.9
2000					
Jan	82 625	929 003	Jan	10.3	8.6
Feb	81 421	930 806	Feb	9.1	9.1
March	81 352	925 590	March	8.0	8.4
April	81 853	947 427	April	8.4	9.9
May	82 113	966 041	May	7.3	11.2
June	81 666	933 672	June	6.9	6.1
July	81 637	924 288	July	6.0	5.9

### 3

#### Interest rates set by the Riksbank

Per cent

	Date	Repo rate	Deposit rate	Lending rate
1996	09-25	5.05		
	10-09	4.95		
	10-23	4.85		
	10-30	4.60	4.25	5.75
	11-27	4.35		
	12-10		3.75	5.25
	12-18	4.10		
1997	12-17	4.35		
1998	06-10	4.10		
	11-04	3.85		
	11-18		3.25	4.75
	11-25	3.60		
	12-16	3.40		
1999	02-17	3.15	2.75	4.25
	03-31	2.90		
	11-17	3.25		
2000	02-09	3.75		

\* Den 1 July 2000 tog Riksgäldskontoret över fastställande och publicering av diskontot.

### 4

#### Capital market interest rates

Effective annualized rate for asked prices. Monthly average, per cent

		Bonds issued by:				Housing	(Caisse)
		Central government					
		3 years	5 years	7 years	9-10 years	2 years	5 years
1998	Jan	5.15	5.33	5.49	5.65	5.56	5.81
	Feb	5.02	5.19	5.36	5.53	5.37	5.63
	March	4.95	5.06	5.18	5.35	5.27	5.44
	April	4.88	4.99	5.05	5.21	5.16	5.31
	May	4.83	4.98	5.04	5.20	5.08	5.25
	June	4.46	4.70	4.79	4.97	4.70	4.96
	July	4.36	4.61	4.71	4.88	4.58	4.88
	Aug	4.39	4.60	4.66	4.80	4.68	4.99
	Sept	4.37	4.56	4.63	4.79	4.72	5.15
	Oct	4.35	4.53	4.68	4.75	4.71	5.30
	Nov	3.94	4.19	4.47	4.59	4.18	4.79
	Dec	3.64	3.86	4.12	4.25	3.89	4.46
1999	Jan	3.38	3.59	3.87	4.02	3.59	4.14
	Feb	3.36	3.67	4.01	4.18	3.52	4.13
	March	3.39	3.80	4.25	4.44	3.55	4.29
	April	3.12	3.53	3.99	4.24	3.26	3.99
	May	3.30	3.80	4.26	4.50	3.47	4.54
	June	3.72	4.28	4.67	4.87	3.82	5.09
	July	4.17	4.81	5.12	5.26	4.64	5.75
	Aug	4.43	5.09	5.39	5.49	5.02	6.15
	Sept	4.51	5.29	5.60	5.69	5.08	6.22
	Oct	4.70	5.53	5.83	5.92	5.22	6.33
	Nov	4.52	5.17	5.46	5.56	4.99	5.89
	Dec	4.61	5.26	5.49	5.59	5.05	5.93
2000	Jan	5.20	5.68	5.87	5.95	5.61	6.22
	Feb	5.36	5.76	5.86	5.90	5.81	6.35
	March	5.17	5.44	5.49	5.51	5.66	6.11
	April	5.04	5.36	5.41	5.42	5.50	6.04
	May	5.02	5.34	5.37	5.34	5.48	6.13
	June	4.94	5.16	5.17	5.13	5.39	5.94
	July	5.05	5.32	5.34	5.31	5.48	6.06
	Aug	4.91	5.25	5.32	5.31	5.31	5.97

## Overnight and money market interest rates

Monthly average, per cent

		Repo- rate	Inter- bank- rate	SSVX			Company certificates	
				3 months	6 months	12 months	3 months	6 months
1997	Jan	4.10	4.20	3.79	3.84		3.95	4.00
	Feb	4.10	4.20	3.96	4.03		4.13	4.20
	March	4.10	4.20	4.16	4.26	4.45	4.34	4.43
	April	4.10	4.20	4.06	4.18		4.24	4.35
	May	4.10	4.20	4.12	4.23		4.30	4.40
	June	4.10	4.20	4.08	4.18	4.47	4.28	4.37
	July	4.10	4.20	4.09	4.24		4.36	4.46
	Aug	4.10	4.20	4.20	4.36		4.45	4.60
	Sep	4.10	4.20	4.13	4.28	4.66	4.37	4.53
	Oct	4.10	4.20	4.26	4.44		4.49	4.68
	Nov	4.10	4.20	4.33	4.54		4.59	4.79
	Dec	4.19	4.29	4.45	4.73	5.09	4.70	4.99
1998	Jan	4.35	4.45	4.44	4.58		4.67	4.84
	Feb	4.35	4.45	4.36	4.54		4.56	4.73
	March	4.35	4.45	4.51	4.59	4.72	4.68	4.76
	April	4.35	4.45	4.50	4.61		4.66	4.76
	May	4.35	4.45	4.52	4.54	4.49	4.67	4.72
	June	4.16	4.28	4.23	4.23	4.29	4.39	4.38
	July	4.10	4.20	4.14	4.14		4.29	4.30
	Aug	4.10	4.20	4.23	4.26		4.37	4.39
	Sept	4.10	4.20	4.22	4.21	4.29	4.36	4.36
	Oct	4.10	4.20	4.20	4.18		4.36	4.34
	Nov	3.83	3.93	3.82	3.75		4.00	3.96
	Dec	3.51	3.61	3.45	3.51	3.53	3.65	3.69
1999	Jan	3.40	3.50	3.27	3.25		3.45	3.46
	Feb	3.30	3.40	3.14	3.16		3.31	3.35
	March	3.14	3.24	3.13	3.18	3.17	3.30	3.33
	April	2.90	3.00	2.87	2.90		3.04	3.07
	May	2.90	3.00	2.92	2.96	3.24	3.11	3.15
	June	2.90	3.00	2.97	3.03	3.37	3.18	3.22
	July	2.90	3.00	3.01	3.16		3.30	3.57
	Aug	2.90	3.00	3.00	3.20		3.32	3.77
	Sept	2.90	3.00	3.05	3.28	3.91	3.27	3.75
	Oct	2.90	3.00	3.23	3.55		3.87	4.00
	Nov	3.06	3.16	3.38	3.63	4.28	3.83	3.91
	Dec	3.25	3.35	3.41	3.73	4.24	3.71	3.95
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



## 6

## Treasury bills and selected international rates

Annualized rate. Monthly average, per cent

		3-month deposits					6-month deposits				
		USD	DEM	EUR	GBP	SSVX	USD	DEM	EUR	GBP	SSVX
1997	Jan	5.58	3.13		6.47	3.79	5.67	3.14		6.66	3.84
	Feb	5.50	3.19		6.35	3.96	5.60	3.19		6.49	4.03
	March	5.62	3.29		6.42	4.16	5.79	3.30		6.54	4.26
	April	5.81	3.25		6.48	4.06	5.99	3.29		6.74	4.18
	May	5.80	3.20		6.54	4.12	5.97	3.26		6.72	4.23
	June	5.77	3.16		6.77	4.08	5.89	3.22		6.91	4.18
	July	5.72	3.16		7.05	4.09	5.81	3.23		7.24	4.24
	Aug	5.69	3.28		7.25	4.20	5.82	3.42		7.37	4.36
	Sep	5.67	3.34		7.29	4.13	5.80	3.48		7.43	4.28
	Oct	5.73	3.65		7.36	4.26	5.80	3.78		7.46	4.44
	Nov	5.83	3.78		7.71	4.33	5.87	3.89		7.77	4.54
	Dec	5.89	3.76		7.69	4.45	5.94	3.84		7.77	4.73
1998	Jan	5.52	3.45		7.42	4.44	5.58	3.54		7.41	4.58
	Feb	5.51	3.41		7.38	4.36	5.52	3.48		7.38	4.54
	March	5.56	3.46		7.41	4.51	5.60	3.58		7.42	4.59
	April	5.57	3.58		7.39	4.50	5.62	3.66		7.39	4.61
	May	5.57	3.54		7.34	4.52	5.64	3.65		7.32	4.54
	June	5.59	3.49		7.59	4.23	5.63	3.59		7.65	4.23
	July	5.57	3.47		7.66	4.14	5.64	3.56		7.71	4.14
	Aug	5.56	3.43		7.57	4.23	5.60	3.52		7.56	4.26
	Sept	5.39	3.42		7.32	4.22	5.30	3.48		7.18	4.21
	Oct	5.18	3.48		7.05	4.20	4.97	3.45		6.83	4.18
	Nov	5.24	3.56		6.79	3.82	5.06	3.51		6.55	3.75
	Dec	5.14	3.26		6.27	3.45	5.00	3.22		5.97	3.51
1999	Jan	4.88		3.04	5.74	3.27	4.89		2.99	5.52	3.25
	Feb	4.87		3.02	5.38	3.14	4.93		2.97	5.25	3.16
	March	4.89		2.98	5.26	3.13	4.97		2.93	5.17	3.18
	April	4.87		2.63	5.17	2.87	4.94		2.62	5.12	2.90
	May	4.90		2.51	5.20	2.92	5.01		2.51	5.18	2.96
	June	5.09		2.57	5.08	2.97	5.28		2.63	5.09	3.03
	July	5.22		2.61	5.03	3.01	5.53		2.81	5.21	3.16
	Aug	5.37		2.64	5.13	3.00	5.78		2.97	5.43	3.20
	Sept	5.48		2.66	5.29	3.05	5.87		3.03	5.68	3.28
	Oct	6.11		3.29	5.85	3.23	6.02		3.33	5.95	3.55
	Nov	6.01		3.38	5.72	3.38	5.96		3.40	5.88	3.63
	Dec	6.07		3.38	5.91	3.41	5.09		3.46	6.10	3.73
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

## Kronans exchange rate: TCW-weighted index and selected exchanges rates

Annual and monthly averages; annual highs and lows

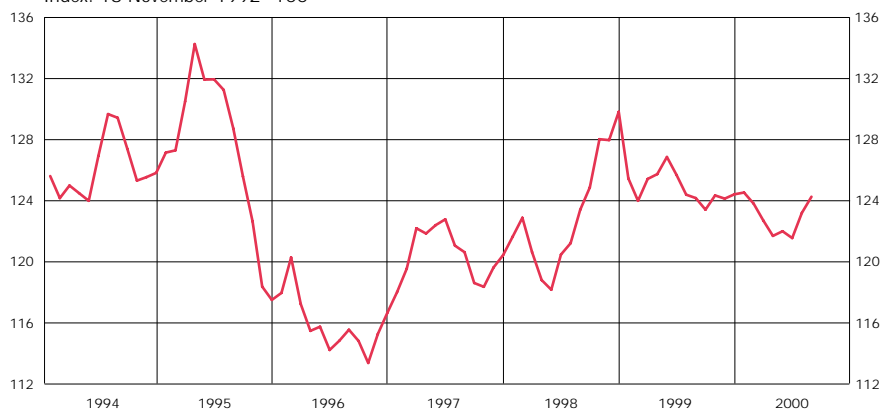
			SEK per			USD per		
			USD	100 DEM	EUR	100 JPY	DEM	JPY
1997	Jan	118.02	7.06	440.02		5.99	1.60	117.83
	Feb	119.55	7.40	442.22		6.02	1.67	122.93
	March	122.20	7.65	450.95		6.25	1.70	122.57
	April	121.85	7.68	449.31		6.12	1.71	125.56
	May	122.40	7.67	450.73		6.47	1.70	118.61
	June	122.79	7.74	448.77		6.78	1.73	114.29
	July	121.06	7.81	436.41		6.78	1.79	115.24
	Aug	120.63	8.00	433.89		6.78	1.84	117.91
	Sept	118.62	7.70	430.56		6.38	1.79	120.73
	Oct	118.36	7.57	430.99		6.26	1.76	120.96
	Nov	119.62	7.56	436.58		6.04	1.73	125.18
	Dec	120.44	7.78	438.03		6.01	1.78	129.49
1998	Jan	121.66	8.00	441.19		6.18	1.82	129.50
	Feb	122.89	8.08	445.30		6.43	1.81	125.69
	March	120.65	7.97	436.38		6.18	1.83	129.00
	April	118.81	7.82	431.28		5.93	1.81	132.13
	May	118.17	7.69	433.46		5.70	1.77	134.96
	June	120.47	7.91	441.36		5.62	1.79	140.15
	July	121.22	7.99	444.30		5.68	1.80	140.63
	Aug	123.41	8.13	447.56		5.61	1.79	144.68
	Sept	124.88	7.91	464.26		5.88	1.70	134.57
	Oct	128.03	7.85	479.02		6.49	1.64	120.78
	Nov	127.97	7.99	475.49		6.64	1.68	120.35
	Dec	129.83	8.05	482.79		6.86	1.67	117.24
1999	Jan	125.46	7.82	464.45	9.0838	6.92	1.69	113.16
	Feb	124.00	7.95	455.54	8.9096	6.82	1.75	116.72
	March	125.43	8.22	457.34	8.9447	6.87	1.80	119.64
	April	125.75	8.32	455.88	8.9162	6.97	1.83	119.72
	May	126.87	8.44	458.97	8.9766	6.93	1.84	122.05
	June	125.69	8.51	451.67	8.8338	7.05	1.88	120.76
	July	124.40	8.46	447.31	8.7485	7.07	1.89	119.54
	Aug	124.17	8.26	447.81	8.7584	7.29	1.84	113.25
	Sept	123.42	8.22	441.40	8.6330	7.67	1.86	107.01
	Oct	124.35	8.15	446.30	8.7289	7.69	1.83	106.03
	Nov	124.14	8.34	441.27	8.6305	7.96	1.89	104.70
	Dec	124.42	8.48	439.16	8.5892	8.27	1.93	102.59
2000	Jan	124.54	8.47	439.49	8.5956	8.07	1.93	105.10
	Feb	123.81	8.65	435.17	8.5112	7.91	1.99	109.45
	March	122.71	8.69	429.23	8.3950	8.16	2.03	106.38
	April	121.70	8.72	422.84	8.2700	8.28	2.07	105.53
	May	122.00	9.09	421.24	8.2388	8.41	2.16	108.28
	June	121.56	8.74	424.98	8.3118	8.24	2.06	106.11
	July	123.20	8.93	429.89	8.4080	8.28	2.08	107.90
	Aug	124.26	9.27	429.29	8.3962	8.58	2.16	108.13

Note. The bas for TCW-index is 18 November 1992.

## 8

## Nominal effective TCW exchange rate

Index: 18 November 1992 = 100



## 9

## Forward foreign exchange market

Forward net position with authorized currency dealers. SEK million, period ends

		Non-bank public		Bank abroad	Riksbank	Total
		Resident (1)	Non-resident (2)	Net (3)	Netto (4)	(1+2+3+4)
1998	May	-174 575	-47 495	133 608	0	- 88 462
	June	-220 387	-23 274	112 675	0	-130 986
	July	-218 997	-22 052	129 587	0	-111 462
	Aug	-284 131	-27 586	201 845	0	-109 872
	Sept	-239 370	-26 312	178 740	0	- 86 942
	Oct	-283 253	-29 446	157 158	0	-155 541
	Nov	-304 235	-26 910	158 008	0	-173 137
	Dec	-274 469	-16 164	129 535	0	-161 098
1999	Jan	-251 675	-11 774	117 395	0	-146 054
	Feb	-252 950	-12 878	93 133	0	-172 695
	March	-272 142	-11 752	131 858	0	-152 036
	April	-274 127	- 9 540	127 642	0	-156 025
	May	-289 324	- 4 744	150 131	0	-143 937
	June	-283 220	- 1 091	129 813	0	-154 498
	July	-279 761	- 2 317	147 386	0	-134 692
	Aug	-271 051	4 393	143 815	0	-122 843
	Sept	-262 300	-11 669	156 294	0	-117 705
	Oct	-258 628	- 6 778	174 294	0	- 91 112
	Nov	-272 818	327	185 332	0	- 87 159
	Dec	-285 131	5 843	182 019	0	- 97 269
2000	Jan	-316 818	14 641	186 082	0	-116 095
	Feb	-311 986	12 019	198 174	0	-101 793
	March	-305 951	7 131	201 270	0	- 97 550
	April	-308 822	10 696	190 084	0	-108 042
	May	-344 256	8 940	214 764	0	-120 552

# Signed articles in earlier issues

Swedish krona loans on international markets	<i>Loulou Wallman</i>	1990:1
Foreign exchange markets in April 1989 – a global study	<i>Robert Bergqvist</i>	1990:1
The balance of payments	<i>Gunnar Blomberg</i>	1990:2
Reinvested earnings and direct investment assets	<i>Fredrika Röckert</i>	1990:2
Foreign ownership – the law and current proposals	<i>Per Arne Ström</i>	1990:2
The international foreign exchange market in 1989 and 1990	<i>Robert Bergqvist</i>	1990:3
Exchange deregulation – short and long-run effects	<i>Christina Lindenius</i>	1990:3
The Swedish credit market, January through September 1990	<i>Marianne Biljer and Per Arne Ström</i>	1990:4
Fewer loans and larger mortgage payments – the Riksbank's household survey, January–June 1990	<i>Anna Thoursie</i>	1990:4
New data on outflow of travel allowance	<i>Fredrika Röckert</i>	1990:4
Competition and regulation: trends in financial systems	<i>David T. Llewellyn</i>	1990:4
Foreign bank branches and Riksbank loan facilities	<i>Loulou Wallman</i>	1991:1
The EMU process in 1990 – a résumé	<i>Gustaf Adlercreutz</i>	1991:1
The Norwegian krone to Ecu	<i>Christina Lindenius</i>	1991:1
The 1990 balance of payments	<i>Fredrika Röckert</i>	1991:2
Swedish holdings of foreign portfolio shares	<i>Martin Falk</i>	1991:2
Profits in commercial banking	<i>Bo Dalheim, Peter Lagerlöf and Per Arne Ström</i>	1991:2
International capital adequacy rules – the work continues	<i>Göran Lind and Åke Törnqvist</i>	1991:2
Safeguard the monetary role of the IMF	<i>Margareta Kylberg</i>	1991:2
Finance companies – structural changes	<i>Marianne Biljer</i>	1991:3
The Swedish krona pegged to the Ecu	<i>Hans Lindberg and Christina Lindenius</i>	1991:3
The private Ecu – characteristics and tendencies	<i>Jonny Nilsson</i>	1991:3
The international foreign exchange market in 1990 and 1991 – expanding EMS block	<i>Robert Bergqvist and Leif Johansson</i>	1991:4

The EEA agreement and the Riksbank	<i>Jan Nipstad</i>	1991:4
Household borrowing in 1991:1	<i>Siw Stjernborg</i>	1991:4
The Riksbank and primary dealers	<i>Robert Bergqvist and Ann Westman Mårtensson</i>	1992:1
Economic and monetary union – Maastricht points the way	<i>Gustaf Adlercreutz</i>	1992:1
European monetary union – convergence criteria and adjustment	<i>Christian Nilsson</i>	1992:1
Bank results in Sweden and other Nordic countries		
<i>Bo Dalheim, Göran Lind and Anna-Karin Nedersjö</i>		1992:2
Market deregulation for krona certificates and bonds	<i>Loulou Wallman</i>	1992:2
Foreign acquisitions of shares in Swedish companies	<i>Rolf Skog</i>	1992:2
The EEA agreement and financial markets	<i>Jan Nipstad</i>	1992:2
The budget deficit and fiscal policy	<i>Krister Andersson</i>	1992:3
Foreign investment in Swedish interest-bearing securities		
<i>Martin Falk and Tomas Niemelä</i>		1992:3
The performance of banks in the UK and Scandinavia: a case study in competition and deregulation	<i>David T. Llewellyn</i>	1992:3
The foreign exchange market in April 1992	<i>Robert Bergqvist</i>	1992:4
The interest rate scale	<i>Ann Westman Mårtensson</i>	1992:4
The local government economy	<i>Maude Svensson</i>	1992:4
Monetary policy indicators	<i>Yngve Lindh</i>	1993:1
Payment systems in transition	<i>Hans Bäckström</i>	1993:1
Annus horribilis for EMU	<i>Gustaf Adlercreutz</i>	1993:1
The 1992 balance of payments	<i>Martin Falk and Anders Lindström</i>	1993:2
The Swedish credit market in 1992	<i>Marianne Biljer and Johanna Jonsson</i>	1993:2
The banking sector in 1992	<i>Bo Dalheim, Göran Lind and Anna-Karin Nedersjö</i>	1993:2
Structural saving deficiency – a long-standing problem		
<i>Annika Alexius and Gunnar Blomberg</i>		1993:2
Capital cover for market risk	<i>Robert Bergqvist and Mats Ericsson</i>	1993:3
Securitisation on the Swedish credit market	<i>Willem van der Hoeven</i>	1993:3
Government indexed bonds	<i>Kerstin Hallsten</i>	1993:3
Estimating forward interest rates	<i>Lars E.O. Svensson</i>	1993:3
Debt consolidation in progress	<i>Daniel Barr and Kurt Gustavsson</i>	1993:4
Will Sweden follow Finland's path?	<i>Maria Landell</i>	1993:4
Monetary policy instruments in EMU	<i>Kari Lotsberg and Ann Westman</i>	1993:4
Monetary policy effects on interest rate formation	<i>Annika Alexius</i>	1994:1
The economic role of asset prices	<i>Claes Berg and Mats Galvenius</i>	1994:1
Stage two in the EMU process	<i>Louise Lundberg</i>	1994:1
The 1993 balance of payments with a flexible exchange rate		
<i>Anders Lindström and Tomas Lundberg</i>		1994:2

Nonresident holdings of Swedish securities	<i>Mattias Croneborg and Johan Östberg</i>	1994:2
The Swedish credit market in 1993	<i>Johanna Jonsson</i>	1994:2
The banking sector in 1993	<i>Göran Lind and Anna-Karin Nedersjö</i>	1994:2
The Riksbank sets reserve requirements to zero	<i>Kari Lotsberg</i>	1994:2
The Riksbank's new interest rate management system	<i>Lars Hörngren</i>	1994:2
The 1993 household survey	<i>Eeva Seppälä</i>	1994:2
Central government debt, interest rates and the behaviour of foreign investors	<i>Thomas Franzén</i>	1994:3
Monetary conditions index – a monetary policy indicator	<i>Bengt Hansson and Hans Lindberg</i>	1994:3
Sweden's net external debt	<i>Robert Bergqvist and Anders Lindström</i>	1994:3
The Riksbank, the RIX system and systemic risks	<i>Daniel Barr</i>	1994:3
RIX – the Riksbank's system for clearing and settlement	<i>Bertil Persson</i>	1994:3
The international foreign exchange market in 1994	<i>Martin Edlund and Kerstin Mitlid</i>	1994:4
The yield curve and investment behaviour	<i>Lars Hörngren and Fredrika Lindsjö</i>	1994:4
Direct investment – interpretations and implications	<i>Johan Östberg</i>	1994:4
Price stability and monetary policy	<i>Urban Bäckström</i>	1995:1
The coordination of economic policy in the European Union	<i>Christina Lindenius</i>	1995:1
The bank's deposit monopoly and competition for savings	<i>Daniel Barr and Lars Hörngren</i>	1995:1
The Riksbank and primary dealers in the currency market	<i>Robert Bergqvist and Ann Westman</i>	1995:1
The 1994 balance of payments – capital flows and exchange rate	<i>Robert Bergqvist and Mattias Croneborg</i>	1995:2
Output gap and inflation in a historical perspective	<i>Mikael Apel</i>	1995:2
The Swedish credit market in 1994 – continued consolidation	<i>Felice Marlor</i>	1995:2
Banks and housing institutions in 1994	<i>Björn Hasselgren and Anna-Karin Nedersjö</i>	1995:2
The 1994 household survey – increased financial saving	<i>Hans Dillén</i>	1995:2
Monetary policy in theory and practice	<i>Lars Hörngren</i>	1995:3
Estimating forward interest rates with the extended Nelson and Siegel method	<i>Lars E.O. Svensson</i>	1995:3
Household saving in private bonds	<i>Lotte Schou and Marianne Wolfbrandt</i>	1995:3
Tourism dominates the travel item	<i>Fredrika Röckert</i>	1995:3
The Riksbank and european monetary cooperation	<i>Urban Bäckström</i>	1995:4
Strategy and instruments in EMU's third stage	<i>Claes Berg</i>	1995:4
EMU and employment	<i>Krister Andersson and Anatoli Annenkov</i>	1995:4
EMU's final objective – a single currency	<i>Stefan Ingves and Agneta Brandimarti</i>	1995:4

EU, EMU and the payment system	<i>Hans Bäckström</i>	1995:4
The management of the bank crisis – in retrospect	<i>Stefan Ingves and Göran Lind</i>	1996:1
The krona's equilibrium real exchange rate	<i>Annika Alexius and Hans Lindberg</i>	1996:1
Sharp swings in international capital flows	<i>Fredrika Röckert and Karin Stillerud</i>	1996:1
Swedish derivatives market dominated by a few agents		
<i>Antti Koivisto and Marianne Wolfbrandt</i>		1996:1
"Herstatt risk" and the international banking system	<i>Hans Bäckström</i>	1996:1
Monetary policy strategies for the European Central Bank	<i>Claes Berg</i>	1996:2
Producer and import prices and the CPI – weak aggregated relationship		
<i>Hans Dellmo</i>		1996:2
The 1995 household survey	<i>Peter Lundkvist</i>	1996:2
Monetary policy, inflation and unemployment	<i>Mikael Apel and Lars Heikensten</i>	1996:3
Potential output and output gap	<i>Mikael Apel, Jan Hansen and Hans Lindberg</i>	1996:3
Government's altered role in financial markets	<i>Martin Blåvarg and Stefan Ingves</i>	1996:3
Aspects of Sweden's external debt	<i>Robert Bergqvist and Tomas Lundberg</i>	1996:4
The Riksbank's management of short-term interest rates	<i>Karolina Holmberg</i>	1996:4
Government's finance in a structural perspective	<i>Johan Fall</i>	1996:4
Monetary policy and unemployment	<i>Urban Bäckström</i>	1997:1
Macroeconomic indicators of system risk	<i>Felice Marlor</i>	1997:1
Structural change and price formation	<i>Tor Borg and Mattias Croneborg</i>	1997:1
Electronic money – risk, questions, potential	<i>Hans Bäckström and Peter Stenkula</i>	1997:1
Has the inflation process changed?	<i>Claes Berg and Peter Lundqvist</i>	1997:2
EMU expectations and interest rates	<i>Hans Dillén and Martin Edlund</i>	1997:2
EMU 1999 – the current situation	<i>Jonas Eriksson and Loulou Wallman</i>	1997:2
The 1996 household survey – renewed upswing in new borrowing	<i>Peter Lundqvist</i>	1997:2
The Swedish repo market	<i>Christian Ragnartz and Johan Östberg</i>	1997:3/4
Payment system float	<i>Johanna Lybeck</i>	1997:3/4
Lessons of the Dutch model	<i>Jonas A. Eriksson and Eva Uddén-Jondal</i>	1997:3/4
The krona's role outside the EMU	<i>Kerstin Mitlid</i>	1998:1
EMU soon a reality – how is monetary policy affected?		
<i>Lars Heikensten and Fredrika Lindsjö</i>		1998:1
Five years with the price stability target	<i>Urban Bäckström</i>	1998:1
Co-ordination for financial stability	<i>Göran Lind</i>	1998:1
Why is an independent central bank a good idea?	<i>Mikael Apel and Staffan Viotti</i>	1998:2
Should Sveriges Riksbank concern itself with share prices?		
<i>Ossian Ekdahl, Jonas A Eriksson and Felice Marlor</i>		1998:2
Exchange rates and currency options as EMU indicators		
<i>Javiera Aguilar and Peter Hördahl</i>		1998:2

Value at Risk <i>Lina El Jahel, William Perraudin and Peter Sellin</i>	1998:2
Efficiency in the payment system – a network perspective <i>Gabriela Guilbourg</i>	1998:3
Securitisation – a future form of financing? <i>Martin Blåvarg and Per Lilja</i>	1998:3
Links between competition and inflation <i>Marcus Asplund and Richard Friberg</i>	1998:3
Inflation targeting and Swedish monetary policy – experience and problems <i>Lars Heikensten and Anders Vredin</i>	1998:4
Can we create a global payments network? <i>Hans Bäckström and Stefan Ingves</i>	1998:4
Why use bond indexes? <i>Christian Ragnartz</i>	1998:4
Development and financial structure of the International Monetary Fund <i>Maria Götherström</i>	1998:4
The Riksbank's inflation target – clarifications and evaluation <i>Lars Heikensten</i>	1999:1
Hedge funds – trouble-makers? <i>Per Walter and Pär Krause</i>	1999:1
Option prices and market expectations <i>Javiera Aguilar and Peter Hördahl</i>	1999:1
Managing and preventing financial crises <i>Martin Andersson and Staffan Viotti</i>	1999:1
The current situation for monetary policy <i>Urban Bäckström</i>	1999:2
Inflation forecasts with uncertainty intervals <i>Mårten Blix and Peter Sellin</i>	1999:2
Market valuation of external position <i>Gunnar Blomberg and Johan Östberg</i>	1999:2
Why Sweden has changed its stabilisation policy regime <i>Villy Bergström</i>	1999:2
Towards new national and international banking regulations <i>Göran Lind and Johan Molin</i>	1999:3
Interest rate risk in the foreign exchange reserve <i>Christian Ragnartz</i>	1999:3
Inflation forecast targeting <i>Claes Berg</i>	1999:3
The current situation for monetary policy <i>Urban Bäckström</i>	1999:4
Different ways of conducting inflation targeting – theory and practice <i>Mikael Apel, Marianne Nessén, Ulf Söderström and Anders Vredin</i>	1999:4
Structural changes in the banking sector – driving forces and consequences <i>Per Lilja</i>	1999:4
Economic policy coordination in the EU/euro area <i>Lars Heikensten and Tomas Ernhagen</i>	2000:1
Is there a “new economy” and is it coming to Europe? <i>Jonas A Eriksson and Martin Ådahl</i>	2000:1
Macroeconomic indicators of credit risk in business lending <i>Lena Lindhe</i>	2000:1
International portfolio investments <i>Roger Josefsson</i>	2000:1
Current monetary policy <i>Urban Bäckström</i>	2000:2
Macroeconomic dependence on demographics: a key to better forecasting <i>Thomas Lindh</i>	2000:2
Swedish housing finance and the euro <i>Margareta Kettis and Lars Nyberg</i>	2000:2





Conducting monetary policy with a collegial board: the new Swedish legislation  
one year on *Claes Berg* and *Hans Lindberg*

2000:2