INTRODUCTION

For more than two decades, transparency in monetary policy has been debated in economic literature. Economists have sought to explain why central-bank policies were less transparent in the past. The research has also uncovered and analysed a number of general arguments for and against transparency in monetary policy.

This article first puts forward arguments in favour of distinguishing between openness and transparency. It then introduces the model framework used in formal analyses of transparency, and presents the main findings of the literature. Recognition of the fundamental differences in monetary policy under the various exchange-rate regimes is a prerequisite for an analysis of transparency under various regimes. The article therefore reviews the differences between monetary policy in a fixed-exchange-rate regime and monetary policy in a floating-exchange-rate regime. Finally, the relation between exchange-rate regimes and transparency in monetary policy is discussed.

The importance of the exchange-rate regime is often overlooked in the discussion of transparency in monetary policy. This is unfortunate, since the requirements and feasibility of transparency depend on whether or not the central bank seeks to manage the exchange rate. Under a fixed-exchange-rate regime the public is free to observe at any time whether the central bank acts in accordance with its objective. However, it is not possible to verify this for a central bank whose monetary policy is based on a future inflation target. If the fiscal-policy authorities recognise the requirements that a fixed-exchange-rate policy entails, it is also relatively easy in technical terms for the central bank to pursue the fixed-exchange-rate policy. A central bank with an inflation target will find it more complicated to seek to manage price development.
OPENNESS AND TRANSPARENCY

As elsewhere in society, there is now a clear trend for central banks to inform more about their tasks, objectives and decisions. The increased communication with the outside world takes several forms, e.g. websites, press conferences, hearings, speeches and reports. This article applies the terminology in Winkler (2000), whereby the concept of openness is associated with the precision and amount of the information released by a central bank to the outside world. Applying this definition, the observed increase in the level of information can be viewed as increased openness concerning monetary policy.

Central bank communication with the outside world is ideally a situation where the general public and the players in the financial markets have a real understanding of monetary policy. Achieving this real understanding naturally makes demands of both the central bank and the outside world. This article focuses solely on the role of the central bank. Winkler defines the concept of transparency as a measure of the central bank’s efforts to enable the outside world to achieve the ideal real understanding of monetary policy.

Increased openness is one of the means to create the required transparency in the central bank’s policy. However, it must be realised that the objective of a high level of transparency cannot be achieved merely by increasing the flow of information. The general public needs relevant and accurate information from the central bank, rather than the greatest possible amount of information, in order to achieve a real understanding of monetary policy. The central bank’s communication with the outside world should therefore focus on communicating information of relevance to monetary policy, and on clear and concise communication of this information so as to avoid unnecessary uncertainty concerning the central bank’s policy.

THE PROS AND CONS OF TRANSPARENCY

The economic pros and cons of transparency in monetary policy have been discussed in academic literature over several decades. Most formal analyses are based on previous research to study a basic credibility problem in monetary policy. Barro and Gordon (1983) show that in order to avoid the credibility problem a rule-based monetary-policy regime may be an ad-

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1 The concept of “openness” in general usage is thus wider than the definition used in this article.
2 Blinder et al. (2001) also point to another type of argument in favour of transparency since many central banks today enjoy a high degree of independence of the political system. The activities and limitations of fully or partly independent institutions in democratic societies depend on the specific institutional conditions, and the subject is not treated further in this article.
vantage for a central bank with an obligation to stimulate output in society and to stabilise the course of both inflation and output.\footnote{Barro and Gordon assume that the central bank can only stimulate output in the short term. In the long term, this is a "classical" model in the sense that monetary policy has no effect on output. The neutrality of money in the long term is characteristic of all the models following the Barro-Gordon tradition described in the following.} The train of thought behind this argument can be outlined as follows: the central bank's wish to stimulate output provides it with an incentive to pursue an expansionary monetary policy. This is realised by the private sector, whose response is to adjust its inflation expectations upwards so as to exactly eliminate the central bank's incentive to stimulate output via inflationary monetary policy. The result is a situation where the central bank fails to stimulate output, but inflation is still higher than desired by both the central bank and the private sector. This is known as "inflation bias" in the literature. If the central bank could in a credible manner commit to not surprising the private sector with an expansionary monetary policy, it would be possible to reduce inflation without undermining output.

The drawback of the rule-based monetary-policy regime is that the central bank cannot pursue its objective of stabilising the development in output, since the fixed rule prevents monetary-policy adjustments when the economy is hit by unexpected shocks.\footnote{Indeed, for as long as the disadvantage of not being able to stabilise output by means of monetary policy is less than the advantage of eliminating the inflation bias, it will still represent a loss if the central bank has no possibility of committing to a fixed rule.} Transparency in monetary policy in closed economies

Barro and Gordon's analysis of the credibility problem forms the basis for most existing studies of the consequences of increased transparency in monetary policy. To provide an impression of these analyses, this article presents the following three examples of studies of models of closed economies.

Cukierman and Meltzer (1986) set up a model with asymmetric information between the central bank and the outside world (only the central bank knows the exact weighting of output and inflation in its objective) as a central element. It is assumed that the central bank's weighting of the output target relative to the inflation target varies over time and that due to shocks the central bank does not have perfect control of the development in the intermediate monetary-policy target.\footnote{More specifically, Cukierman and Meltzer assume that the central bank's intermediate target is the money stock, but this assumption is not of vital significance to the result. In their analysis of transparency the authors assume that the central bank is free to vary the degree of control of the intermediate target (the money stock).}
The analysis shows that it is not always optimal for the central bank to reduce asymmetrical information by increasing the transparency of its policy, since the central bank thereby loses the opportunity to surprise the general public in periods when the central bank attaches particular importance to either the output or the inflation target.

Eijffinger et al. (2000) assume that the central bank has no difficulty controlling its intermediate target. Instead, they introduce a supply shock in the analysis, giving the central bank an incentive to pursue a stabilisation-oriented policy. Within the framework of this model it is shown that a higher degree of transparency (in the form of more specific information on the central bank’s weighting of the output target in relation to the inflation target) is not necessarily best for society. If the credibility problem is limited and/or there is a great need for stabilisation, a certain degree of uncertainty concerning the central bank’s objective will maximise welfare.

Jensen (2002) also finds that less than full transparency is the optimum situation for a central bank that already enjoys a high degree of credibility. This model distinguishes itself from others in the literature by being based on a new-Keynesian Phillips curve where the expectation of future inflation is one of the factors determining current inflation. The underlying train of thought is that enhanced transparency makes monetary policy more informative, whereby future expectations tend to react more strongly to monetary-policy adjustments. The central bank’s response to shocks may therefore be more cautious, which is not an advantage if the central bank enjoys sufficient credibility to actively use monetary policy as a stabilisation measure.

The principal finding of the literature that analyses transparency in monetary policy in closed economies is thus that enhanced credibility is the key advantage of transparency, while the key drawback is loss of flexibility. Enhanced transparency gives the general public a better understanding of monetary policy, and better opportunities to monitor that the central bank fulfils its promise to pursue a low-inflation policy. The drawback is that a very transparent monetary policy can limit the central bank’s opportunity to respond effectively to shocks to the economy, which can lead to a more erratic economic course.

Viewed in the light of the results of Barro and Gordon (1983) concerning a rule-based monetary-policy regime a high degree of transparency in monetary policy can be seen as an alternative means of achieving credibility. A central bank which is unable to commit to a fixed monetary-policy rule may counter the potential inflation bias by actively ensuring that the general public gains a real understanding of monetary policy.
Transparency in monetary policy in open economies

Another branch of the literature explicitly considers models of open economies. A case in point is Canavan and Tommasi (1997) who discuss exchange-rate regimes and transparency. Their starting point is also a Barro-Gordon model with asymmetric information on the central bank’s preferences. The Canavan and Tommasi model distinguishes between two types of central bank that attach different weight to the output target relative to the inflation target. The model also includes a shock to the relation between the central bank’s actions and the general public’s observations thereof. The greater the variance of the shock, the lower the degree of transparency in monetary policy.

The authors assume that a fixed-exchange-rate regime is a very transparent anchor for monetary policy, while a floating exchange rate signifies less transparency. In an extended model the choice of exchange-rate regime is endogenised, and it is shown that central banks that attach most weight to the inflation target tend to choose the fixed-exchange-rate regime to a higher degree than central banks that attach most weight to the output target. This affects the general public’s assessment of the central bank, and it is found more likely that the central bank attaches considerable weight to the inflation target on announcing a fixed-exchange-rate regime.

Herrendorf (1999) also analyses exchange-rate regimes and transparency. The author argues that the exchange rate is easier to control than inflation: in principle, the central bank is perfectly able to maintain an exchange rate that is in accordance with the underlying economic trends, given adequate foreign-exchange reserves. On the other hand, an inflation target cannot be met precisely, in view of the instability of money demand and the uncertain transmission mechanism.

Again, this is a Barro-Gordon model where the general public is assumed to be in doubt concerning the type of central bank. Herrendorf considers two types: a central bank bound by a fixed monetary-policy rule involving zero inflation, and a central bank pursuing a discretionary policy. As stated above, a discretionary policy in a Barro-Gordon model leads to inflation bias, i.e. high inflation without the desired improvement in output.

A floating-exchange-rate regime may (under certain circumstances) imply a state of equilibrium, whereby the central bank that pursues a

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1 It should be noted that although Herrendorf states that a fixed exchange rate will enable the central bank to better control its target variable, while Canavan and Tommasi state that a fixed-exchange-rate regime enables the general public to better observe whether the central bank meets its target, this does not really make any difference. The central aspect is that a fixed-exchange-rate policy makes it easier for the general public to determine whether the central bank’s actual policy is in accordance with its monetary-policy strategy.

2 In a fixed-exchange-rate regime the zero-inflation rule is replaced by a fixed-exchange-rate rule.
discretionary policy imitates the other type of central bank by also planning zero inflation. No inflation bias will arise because the type of central bank not bound by a rule will also observe the rule in practice. The condition for the existence of this equilibrium is that the increase in output which may be achieved by the central bank with the discretionary policy by pursuing an inflationary policy is overshadowed by the loss generated by increasing future inflation expectations. In the absence of equilibrium with imitation, the central bank pursuing a discretionary policy will opt to plan for a positive inflation rate, and there is a certain probability that the central bank will be disclosed as the type not bound by a rule. If the central bank pursuing a discretionary policy is disclosed, the private sector will not expect zero inflation, and inflation bias will occur.

In a fixed-exchange-rate regime any deviation from the rule for a constant exchange rate will be detected by the private sector. The type of central bank pursuing a discretionary policy will therefore be disclosed, unless it chooses to maintain a constant exchange rate. Herrendorf shows that even in a fixed-exchange-rate regime, a central bank pursuing a discretionary policy may choose to imitate the central bank with a fixed monetary-policy rule. It is also shown that the probability of equilibrium with imitation occurring may be greater in a fixed-exchange-rate regime than in a floating-exchange-rate regime. In such case the inflation-bias problem will be less pronounced.

Herrendorf also analyses the choice of exchange-rate regime. It is shown that both types of central bank may find it an optimum measure to choose a fixed-exchange-rate policy, provided that the costs of such a regime (import of foreign inflation and shocks to the real exchange rate) are not excessive.

Both Canavan and Tommasi and Herrendorf apply the assumption that transparency in monetary policy is greater with a fixed-exchange-rate regime than with a floating-exchange-rate regime. It is thus not a question of analysing whether enhanced transparency is an advantage in fixed-exchange-rate regimes. Instead, the consequences of the transparency assumed to be implicit in a fixed-exchange-rate regime are analysed.

**Intervention in the foreign-exchange market and transparency**

The last branch of the literature introduced in this article treats intervention in the foreign-exchange market. Many observers have noted that central banks do not provide information immediately when they

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1 In a state of equilibrium none of the agents in the model has an incentive to change behaviour.
intervene in the foreign-exchange market to influence the exchange rate. This may seem surprising in view of the arguments in favour of a high degree of transparency. In addition, one of the mechanisms stated as important to interventions influencing the exchange rate (Mussa’s (1981) theory on the role of intervention as a signal of future monetary policy) seems to depend on the fact that the general public knows that the central bank is intervening in the foreign-exchange market.¹

In order for signals concerning the future policy to have effects on today's exchange rate it is essential that the exchange rate is a forward-looking variable. The current exchange rate depends on the future return from the placement of funds in the two currencies. Monetary policy (and expectations of the future monetary policy) in the two countries will affect the expected returns and thereby the current exchange rate. This is why intervention in the foreign-exchange market, in so far as the market perceives the intervention as new information on the future monetary policy, could cause the exchange rate to change immediately. The effect of this mechanism can be assumed to be stronger, the greater the market's certainty that the central bank is intervening in the market.

It should be noted that failure to intervene by the central bank may also be new information if the market participants expect the central bank to intervene in support of the exchange rate. If the market expects intervention and the central bank fails to trade currencies in the market, the result may also be a change in the exchange rate.

EXCHANGE-RATE REGIMES AND MONETARY POLICY

It is well-known that the opportunities and limitations of monetary policy vary considerably according to whether the central bank seeks to manage the exchange rate or not. In a fixed-exchange-rate regime monetary policy must be planned to maintain a fixed exchange rate, so that the central bank loses its opportunity to pursue an independent monetary policy. The official interest rate must be set to achieve equilibrium between supply and demand for the currency at the desired exchange rate, so that the interest rate cannot be used to pursue other objectives. Furthermore, most central banks pursuing a fixed-exchange-rate policy have foreign-exchange reserves to be used for direct inter-

¹ The other main theory on the effect of (sterilised) interventions on the exchange rate is based on the portfolio-balance model (see e.g. Kenen (1982)). The train of thought behind this explanation is that intervention has an effect because the purchase or sale of foreign exchange (assets) by the central bank changes the composition of the private sector's portfolio. The exchange rate will change when the private sector re-balances its portfolio to align the expected returns on assets denominated in domestic and foreign currency. The portfolio-balance theory will not be discussed in further detail in this article, since the effect of intervention via this channel does not depend on the central bank's openness about its intervention in the market.
vention in the market to further support the exchange rate in the short term.

Other considerations may be accommodated in monetary-policy regimes where monetary policy is not bound by the objective of a fixed exchange rate. Other central banks now base their monetary policy on an inflation target. The interest rate is set with a view to maintaining future inflation at the desired level. Other central banks also include real-economic factors such as output or employment directly in their target. The combination of one instrument and several targets will generally make the central bank unable to fulfil all its objectives.

One of the key differences between monetary policy in a fixed and a floating exchange-rate regime is the opportunity for the outside world to assess whether the central bank fully meets its target. In a fixed-exchange-rate regime the general public may continuously assess the central bank’s policy by observing the market exchange rate. In this respect monetary policy based on an exchange-rate target shows a very high degree of transparency.

In a floating-exchange-rate regime where the central bank applies an inflation target outsiders may find it more difficult to assess whether the policy pursued is in accordance with the announced target. The inflation target is usually defined as the rate of inflation “in the medium term”, which cannot be observed since the definition implies (expectations of) the future development in prices. A central bank with an inflation target thus pursues an objective which cannot be quantified unequivocally here and now. For example, if inflation expectations are based on estimates from economic models, the estimate will depend on the model applied as well as the assumptions on which the calculation is based. An objective measure of the price development – actual inflation – is therefore often used as an indicator of the central bank’s performance as regards its announced low-inflation policy.

Another factor which makes it difficult for the general public to assess whether the central bank is adhering to its strategy is that the economy is constantly affected by shocks that lead to deviations between the central bank’s inflation target and the actual price development. Most often it will be impossible to tell who exactly is responsible for these

1 In floating-exchange-rate regimes the central bank also has only one instrument (the most frequently chosen is a short-term interest rate), so that even in a floating-exchange-rate regime monetary policy may be used to pursue one objective only.

2 The central bank has thus waived its opportunity to use monetary policy to manage the exchange rate.

3 A problem with this indicator is that the actual development in prices is not compiled on a continuous basis, but rather on a monthly basis, so that it is not usually published until some weeks after the end of the month.

4 Some central banks seek to avoid these problems by means of a core inflation target, excluding the most volatile components (e.g. energy and food) of the consumer-price index.
deviations, which may lead to uncertainty about the strength of the central bank's commitment to its target. All in all, a medium-term inflation target is not completely transparent, since the general public cannot easily assess whether the central bank fulfils its target.

Another difference between fixed and floating exchange-rate regimes relevant to the discussion of transparency is the central bank's opportunities to meet its target by means of monetary-policy adjustments. A central bank whose exchange-rate target is in harmony with the economic fundamentals (which must be ensured by the rest of economic policy, especially fiscal policy) will find interest-rate adjustments and possible direct intervention in the market a useful means to fulfil the target. Furthermore, a central bank pursuing a fixed-exchange-rate policy can benefit from the fact that the effects of its policy adjustments on the exchange rate are immediately visible in the market.

The situation is different for a central bank that bases its monetary policy on an inflation target, since there is no simple relation between the official interest rate and the future development in prices. The effect of an interest-rate adjustment today is uncertain in terms of how much and when inflation is affected. Central banks and academics alike have long focused on the monetary-policy transmission mechanism – the relationship between adjustments of the monetary-policy instrument and changes in the central banks' targets (e.g. inflation) – and central banks' interest-rate decisions are therefore made on an increasingly more informed basis. However, it is still a complex task for central banks to determine the official interest rates so that prices take a future course that accords with the bank's inflation target.

Intervention in the foreign-exchange market normally plays a more significant role in a fixed than in a floating exchange-rate regime. The key difference between intervention and interest-rate adjustments as monetary-policy instruments is that the foreign-exchange reserves are limited. As a result, Blinder et al. (2001) emphasise that central banks may have to display less than full openness about their intervention in the foreign-exchange market.

A central bank pursuing a fixed-exchange-rate policy has committed itself to managing the price of its country's currency in the free market. To be able to influence the exchange rate while maintaining a well-functioning private market, the central bank has to keep its tactical considerations to itself. Publication of the central bank's trading strategy

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1 One of the latest contributions to the literature on the monetary-policy transmission mechanism is the result of a major ECB project. The articles have subsequently been published in the ECB's Working Paper series (nos. 91-114).
would erase the uncertainty which ensures that speculation against the currency may not only yield gains, but also potentially entail costs.

**EXCHANGE-RATE REGIMES AND TRANSPARENCY**

This article has argued that a central bank aims to achieve a degree of openness about its monetary and foreign-exchange policy that will enable the general public to gain a real understanding of that policy. At the same time, the article has described principal differences between monetary policies in a fixed and a floating exchange-rate regime where these differences are central to the discussion of transparency in monetary policy.

Fundamentally, monetary policy is more transparent in a fixed-exchange-rate regime than in a floating-exchange-rate regime, since the general public will always find it easier to observe whether the central bank pursues the (low-inflation) policy to which it is committed, and because it is easier for the central bank to control an exchange-rate target than a future inflation target. Less information is thus required in a fixed-exchange-rate regime, where in particular there are fewer factors of relevance to monetary policy. As a result, in order to achieve the same degree of transparency a central bank with an inflation target for its monetary policy has to provide more information than a central bank pursuing a fixed-exchange-rate policy.

A central bank basing its monetary policy on an inflation target has to conduct an extensive analysis of the inflation prospects as the basis for the decision-making process. In a fixed-exchange-rate regime the monetary-policy decisions will most often be based on other analyses that focus particularly on the course of the exchange rate, as well as supply and demand in the foreign-exchange market in the short and long term. This variation in the internal analysis which is the basis for the decisions will naturally be reflected in the information provided by the two types of central bank. It is also clear that transparency, and thereby a real understanding of monetary policy, also requires the central bank’s communication to the general public to provide a correct picture of the central bank’s internal decision-making process. This means that transparency is not necessarily enhanced by increasing the amount of information provided by the central bank. Good communication is a rather more complicated task, and the central bank must aim to communicate coherent and relevant information that enables the general public to understand the monetary-policy decisions.
LITERATURE


