Monetary-Policy Targets and Instruments

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INTRODUCTION AND SUMMARY

The monetary-policy framework in the European countries has changed over the last 20 years. In fact, Denmark is an exception in that it has maintained a basically unchanged fixed-exchange-rate policy since 1982. The other EU member states that previously participated in the Exchange Rate Mechanism have now gone one step further and have introduced a single currency, the euro. Norway, Sweden and the UK also had fixed-exchange-rate regimes at some point during this period, but they now base their monetary policies on inflation targets. The monetary-policy regimes of the new EU member states span from currency boards in Estonia and Lithuania to inflation targeting in Poland and the Czech Republic.

The EU Treaty obliges the acceding countries to introduce the euro sometime, and consequently they must join the European Exchange Rate Mechanism, ERM II, for a transitional period. The monetary and foreign-exchange policies of these countries must therefore be altered in the coming years. Some acceding countries already pursue a fixed-exchange-rate policy that can be continued within the framework of ERM II. For them, the policy change will take place in connection with the transition to EMU. Other new EU member states have floating exchange rates and base their monetary policies on inflation targets; for them a more comprehensive policy change will be required. The necessary changes to monetary and foreign-exchange policy in these countries will also have an impact on fiscal policy and other stabilisation policies, and it would be expedient to introduce some of the adjustments in connection with their ERM II membership.

This article discusses some of the theoretical aspects of monetary and foreign-exchange policy in small open economies. The basic theoretical result is that since there is only one monetary-policy instrument – the short-term interest rate – monetary policy can only meet one target, e.g. an exchange-rate target or an inflation target. If various supplementary factors are included, the theoretical model becomes more complex and the results somewhat more ambiguous. Specifically, extensions of the model indicate that a central bank’s options to pursue more than one
target depend on the targets in question. For a number of reasons it is particularly difficult for central banks to control exchange rates while also meeting other targets.

The article is structured as follows: first a brief overview of the new EU member states' current monetary-policy and foreign-exchange-policy strategies is given. This is followed by the presentation of a model of the relationship between monetary-policy targets and instruments on the basis of Tinbergen's (1952) and Johansen's (1977) general analyses of targets and instruments in economic policy. After a review of a number of possible extensions of the model selected monetary-policy strategies are discussed in more detail – including fixed-exchange-rate policy and flexible inflation targeting. Finally, the article considers some of the special circumstances affecting the monetary-policy strategies of the acceding countries prior to their membership of the euro.

THE MONETARY AND FOREIGN-EXCHANGE POLICIES OF THE ACCEDING COUNTRIES

The monetary-policy and foreign-exchange-policy strategies of the new EU member states varied substantially at the time of accession. Foreign-exchange policies span from very tight management of exchange rates in some new member states to freely floating exchange rates in others. Likewise, the degree of monetary-policy autonomy, i.e. the possibility of adjusting monetary policy to the domestic economic situation, spans from no autonomy at all in countries with fixed-exchange-rate regimes to full autonomy, in principle, in countries with freely floating exchange rates. In general, the small new member states (Cyprus, Estonia, Latvia, Lithuania, Malta and Slovenia) tend to manage their exchange rates more tightly than the large new member states (Poland, Slovakia, the Czech Republic and Hungary) do. The large new member states have, however, all attempted to manage exchange rates more tightly at some point.

In the small new member states, monetary policy is mainly aimed at meeting the selected exchange-rate target. Estonia and Lithuania have completely abandoned their monetary-policy autonomy in favour of currency boards\(^1\) vis-à-vis the euro. Malta's fixed-exchange-rate policy against a basket of currencies (euro, dollar and sterling), the narrow band between the Latvian lat and SDR\(^2\), and the narrow band in practice

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\(^1\) Under a currency board, the central bank must, on request, exchange the national currency for the selected anchor currency at a statutory exchange rate. The central bank does not issue national currency exceeding the value of its foreign-exchange reserve, cf. e.g. Bie and Hahnemann (2000).

\(^2\) SDRs are Special Drawing Rights issued by the International Monetary Fund. SDRs are defined as a weighted currency unit equivalent to the sum of 0.426 euro, 21 Japanese yen, 0.0984 pounds sterling and 0.577 US dollars.
between the Cypriot pound and the euro give the respective central banks very little room for manoeuvre. In Slovenia the central bank has ensured a stable exchange-rate development in recent years in the form of a steady weakening of the tolar vis-à-vis the euro.

In the four largest acceding countries, monetary policy is generally aimed at meeting an inflation target. The Polish and Czech currencies float freely, and monetary policy is solely aimed at meeting the stipulated inflation targets. The central bank of Slovakia operates with an inflation target, while also seeking to address large exchange-rate fluctuations. Finally, the inflation target in Hungary is combined with an exchange-rate target, viz. an announced central rate vis-à-vis the euro and a fluctuation band of +/- 15 per cent.

The shifts from tight exchange-rate management to a freely floating currency in the Czech Republic and more indirect and looser management in Slovakia were brought about by currency crises in 1997 and 1998, respectively. Poland gradually went from a managed exchange rate to a freely floating currency over a prolonged period. Until 2001, Hungary managed its exchange rate within the framework of a crawling peg, involving a steady weakening of the forint.

AN ECONOMIC MODEL

Consensus has gradually been reached among economists that the short-term interest rate is the only monetary-policy instrument (see e.g. Goodhart, 1989, and Woodford, 2003). There is also agreement that price stability should be the overall target of monetary policy. However, when it comes to selecting more specific (intermediate) targets, greater variation is seen, even within Europe. In Denmark, the exchange rate vis-à-vis the euro is the direct monetary-policy target, while other countries operate with several targets, e.g. stabilising inflation and output in countries applying flexible inflation targeting.

The basic analysis of the link between economic-policy targets and instruments is found in Tinbergen (1952). The analysis shows that the relationship between the number of instruments and the number of targets is essential. If the number of targets is equal to the number of instruments, it is in principle possible to calculate how the instruments are to be adjusted in order to meet the targets. If the number of instruments exceeds the number of targets, there are several ways of meeting the targets. Finally, if there are more targets than instruments, it is normally not possible to meet the targets by means of the instruments. It is therefore necessary to weigh the various targets unless new, effective instruments can be found.
Tinbergen’s analysis is a useful starting point for a discussion of the relationship between monetary-policy targets and instruments. The exposition in the following is based on Tinbergen’s theory.¹ First it is assumed that the central bank is only interested in the target variable \( x \) (e.g. the exchange rate), and that the exact value aimed at is \( x^* \). The central bank is assumed to have at its disposal a monetary-policy instrument \( i \) (the short-term interest rate) that can affect the selected target. Finally, the relation between the instrument and the target is given by the function \( f \), which is assumed to link a unique value of the exchange rate \( x \) to each value of the interest rate

\[
f(i) = x, \quad i \in I,
\]

where the interest rate can only assume values in the set \( I \) (e.g. non-negative values). Initially we will disregard the uncertainty relating to the function \( f \), assuming that the relationship is deterministic.

If the monetary-policy target is to be met through adjustment of the instrument, there must be a value of \( i \) for which the following equation is true

\[
f(i) = x^*.
\]

Chart 1(a) shows a case where a solution exists. If the short-term interest rate is equal to \( i^* \), the monetary-policy target is met – the exchange rate assumes the value \( x^* \).

The central bank might also be interested in several target variables, e.g. inflation and output. Here we will consider a case with two target variables, \( x \) and \( y \), with the desired values \( x^* \) and \( y^* \). The relation between the short-term interest rate and the targets is assumed to be given by the (vector) function \( f \), which links unique values of the target variables to each value of the instrument

\[
f(i) = (x, y), \quad i \in I.
\]

Meeting the monetary-policy targets now requires a solution to the following equation

\[
f(i) = (x^*, y^*).
\]

Chart 1(b) illustrates that generally it is not possible to meet two targets using only one instrument. The possibility curve \( f(i) = (x,y) \) indicates the combinations of the target variables achievable by adjusting the instrument. The curve does not pass through the point \( (x^*, y^*) \), which means that there is no value of the instrument that ensures fulfilment of both targets at the same time. However, in the example there are values of

¹ The formal presentation here has much in common with the discussion in Johansen (1977), which considers economic policy in general.
the instrument that lead to separate fulfilment of the targets: if the interest rate is set at $i_y$, the target for $y$ will be met, while an interest rate of $i_x$ ensures that the target for $x$ is met.

The conclusion of the analysis is that a central bank can usually ensure precise fulfilment of one target by adjusting its instrument. A central bank attempting to meet several targets by adjusting its short-term interest rate may encounter the problem that the interest rate ensuring fulfilment of one target may not ensure fulfilment of the other target. In that situation the central bank must prioritise non-fulfilment of the various targets when setting its instrument.

**EXTENDING THE MODEL**

The basic model introduced in the preceding section allowed a clear presentation of the key result. However, the model is naturally only a very rudimentary description of monetary policy. This section discusses possible extensions of the model, focusing on their significance to the need for harmonising the number of monetary-policy targets and instruments.

**Selecting targets**

In the model, the monetary-policy targets were implicitly assumed to have been chosen independently of the relationship between instrument and target variables. In that case there is no direct mechanism
ensuring consistency between targets and instruments. If the monetary-policy targets are not set with the target-variable values achievable via the instrument in mind, the possibility curve will only pass through the target point by coincidence.

In practice monetary-policy targets are selected on the basis of the central bank's perception of the possibility curve. It is useful to make a distinction between two fundamentally different approaches: 1) The central bank continuously chooses its preferred point from the possible points on the current possibility curve. 2) The central bank selects its targets based on the possible points on a "structural" possibility curve.

In principle, the current possibility curve may give the central bank an overview of the outcomes (e.g. combinations of inflation and output) currently achievable by adjusting the instrument. This allows the bank to choose its preferred outcome on an ongoing basis and set the short-term interest rate accordingly. This type of strategy, under which the central bank continuously adjusts its instrument based on the currently optimal solution, is known as "discretionary" monetary policy in the literature. Another option is rule-based policy, where the instrument is set according to a rule, e.g. with a view to meeting a pre-announced target. Kydland and Prescott (1977) and Barro and Gordon (1983) were among the first to describe the basic difference between the two types of policies. Their main result is that the discretionary monetary policy leads to an inflation bias since inflation becomes higher than under a rule-based policy. The result is based on the assumption that the central bank's output target is higher than the potential level. More recent literature has pointed to other disadvantages of discretionary monetary policy, which do not depend on the central bank aiming at output in excess of the potential level, see e.g. Woodford (2003).

Alternatively, the monetary-policy targets may be fixed on the basis of a structural possibility curve. This means that the central bank selects the targets using its model of the economy's structural relationships that can be assumed to dominate in the longer term. In this way the central bank can ensure that there is no underlying conflict between its targets. An example could be a central bank that wishes to minimise fluctuations in inflation and output, believing that a positive short-term relationship exists between inflation and output gap. By selecting the potential output as the output target – i.e. a target of zero for the output gap – the central bank ensures that the output target is consistent with an unchanged rate of inflation. Thus a situation where the output gap is zero.

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1 The output gap is the difference between actual and potential output (i.e. the output in a long-term equilibrium with full employment and flexible prices).
and the inflation target is met is an equilibrium where no underlying mechanisms in the economy act to undermine the target fulfilment.

Flexible inflation targeting is precisely based on underlying targets of stabilising inflation and output. However, it is worth noting that under fairly general assumptions of the model for the economy it is possible to demonstrate that the optimal monetary policy, given targets for stabilising inflation and output, can be expressed as a fixed target, i.e. a value for (the expected value of) inflation in the medium term (see e.g. Svensson (1997)). It is therefore arguable whether flexible inflation targeting within the framework of the model discussed in this article is best interpreted as having one or two targets.

With the selected targets, it would also be an advantage if deviations from the targets require the same (qualitative) change in the monetary-policy instrument. In the example with flexible inflation targeting, this will be met if a positive output gap is most frequently associated with inflation above the target (e.g. as a result of a positive demand shock) since the optimal monetary-policy reaction to both these deviations would be to raise the short-term interest rate. Given this relationship between the monetary-policy targets, the central bank will normally not be faced with a dilemma as to setting the short-term interest rate except for the very short term, cf. e.g. Svendsen, Røisland and Olsen (2004).

**Target zones**

One of the assumptions in the model is that the central bank's target is an exact value for one or several target variables. While this is consistent with the targets of certain central banks, e.g. the Baltic currency boards, there are also many central banks which operate with wider target zones. In Denmark's case a narrow fluctuation band of +/- 2.25 per cent around the central rate vis-à-vis the euro has been fixed for the krone under ERM II,¹ and in most countries with inflation targets the central bank aims to keep inflation within a given interval, typically +/- 1 per cent around the target.

One reason why central banks do not attempt to keep the target variable constant at an exact value is that this strategy would require very frequent adjustments of the instrument. A high degree of variability in the instrument complicates the central bank's external communication and reduces its scope for sending a clear monetary-policy signal. Moreover, in regimes with much uncertainty as to the impact of changes in the instrument on the target variable it will only be practically possible to keep the target variable within an interval.

¹ In recent years the krone has been kept stable close to the central rate.
The model can be extended to comprise target zones. Instead of $x^*$, the central bank's target is described as an interval e.g. $[\underline{x}^*; \bar{x}^*]$. Since the target is broader, several values for the instrument will result in the target being met, and this leaves more scope for conducting monetary policy. For a central bank with two targets, a transition to target zones will, all other things being equal, increase the probability that both targets can be met at the same time.

Several possible equilibria
The model implies that the relationship between the monetary-policy instrument and the monetary-policy targets can be described using a function, which means that for each value of the instrument there is only one target value. It could be objected that there are economic models with several possible equilibria implied by e.g. the expectation formation. More specifically, the equilibrium of the economy – and thus the values of the target variables – can change solely as a result of changes in consumers' and business enterprises' expectations of future monetary policy. All other things being equal, the possibility of multiple equilibria will make it more difficult for the central bank to achieve precisely the equilibrium where the targets are met.

The transmission mechanism
The relationship between the central bank's instrument and the target variables is often referred to as the monetary-policy transmission mechanism. In fact, this also involves a number of other economic variables and relations. The model's function, $f$, is a "reduced form" of this, summarising all the underlying elements. In a fully specified model of the economy, the short-term interest rate determined by the central bank and the target variables (e.g. the exchange rate or inflation and the output gap) will be included along with other macroeconomic variables such as consumption, investment, government budget balance, balance of payments, long-term interest rate and relevant foreign variables. The relationship between the central bank's instrument and targets in the aggregate model can be determined by solving the model for different values of the monetary-policy instrument and finding the associated values for the central bank's target variables. When the function binding the instrument and targets together has been derived in this way, assumptions regarding the values of the other variables and regarding the economic relationships included in the aggregate model have been made in the process. The estimated function is therefore only valid if these auxiliary assumptions are true.
A fiscal-policy expansion is an example of an event that can lead to a shift in the function \( f \). If the central bank's target is a stable exchange rate, an unexpected fiscal-policy expansion could exert downwards pressure on the currency. Thus the previous relationship between the short-term interest rate and the exchange rate no longer holds true, and monetary policy must be tightened if the exchange-rate target is to be met. A central bank with targets for inflation and the output gap may also find that where a given value for the short-term interest rate ensured that the targets were met before the fiscal-policy expansion, this is not the case after the expansion. Usually, fiscal-policy expansion will lead to increased inflation and a positive output gap, and the central bank will therefore have to raise its interest rate to reduce demand so that its targets can be met once again.

Influences from abroad may also lead to shifts in the transmission mechanism. For instance, it is obvious that the exchange rate between two currencies is determined by economic developments and policies in both countries. Consequently, a central bank with an exchange-rate target will see frequent shifts in the possibility curve as a result of e.g. changes in the anchor country's monetary policy. In Chart 1(a) this is equivalent to a shift in the function \( f \) and a change of the interest rate at which the exchange-rate target is met. For a central bank with an inflation target foreign impacts may also lead to shifts requiring a change in monetary policy in order to keep the development in prices on track.

Generally there are many types of changes in the economic system that can lead to changes in the monetary-policy transmission mechanism. Changes in fiscal policy and foreign influences are important examples, but structural shifts in the economy – e.g. owing to innovations in the financial markets – may have similar effects. This makes it more difficult for the central bank to conduct monetary policy than the basic model indicates. The relationship between the monetary-policy instrument and the targets is not invariant, and the central bank must therefore be ready to adjust its monetary policy if the relationship changes.

Since fiscal policy plays an important role in the central bank's ability to reach its targets, adjustment of fiscal policy may be necessary if monetary policy alone cannot ensure that the monetary-policy targets are met. For instance, lack of confidence in the economic policy of a country pursuing a fixed-exchange-rate policy may exert pressure on the currency, which cannot necessarily be addressed via tighter monetary policy, but which must rather be addressed via a fiscal-policy correction.
Dynamic transmission

The model described in this article does not distinguish between dynamic and static relationships. If changes to the monetary-policy instrument have a delayed effect on the monetary-policy targets, the central bank’s task becomes considerably more difficult. When monetary policy is based on flexible inflation targeting, the relationship is dynamic since the target is to control inflation in the medium term. The central bank changes its short-term interest rate in order to influence inflation e.g. two years ahead. This means that the central bank cannot immediately assess whether an adjustment of the monetary-policy instrument has the desired impact on its target variable.

For a central bank with an exchange-rate target the relationship between instrument and target is, however, static in the sense that adjustments of the short-term interest rate have an immediate impact on the exchange rate. Consequently, the central bank can very quickly see whether the change to the interest rate has the desired effect on the exchange rate.

Generally the model’s results do not, however, depend on the target horizon. Within the framework of the model other cases can be analysed, e.g. several targets with different horizons. A monetary-policy strategy based on a medium-term inflation target and an exchange-rate target to be observed continuously is thus merely a variant of the two-target situation. However, it is clear that the horizon for the monetary-policy target is of major importance to the "technique" of the central bank’s implementation of monetary policy and to its external communication, cf. e.g. Storgaard (2002).

Stochastic transmission

In the model, the transmission mechanism has been described as a deterministic relation. In practice, however, the transmission from the monetary-policy instrument to the targets is subject to uncertainty. When the central bank changes its short-term interest rate, the effect on the exchange rate or the future inflation is not known precisely. The importance of this depends on whether the relationship between the instrument and the targets is dynamic. The longer and more complex the transmission mechanism, the greater the risk that e.g. unexpected shocks to the economy prevent the central bank from meeting its targets. Extending the model to the case of a stochastic relationship between the instrument and the targets renders it more probable that

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1 The reason why the central bank does not try to manage current inflation when applying flexible inflation targeting is that changes in the monetary-policy instrument are only assumed to pass through to prices with a certain lag.
the central bank will not meet its targets precisely and does not reduce the need for the number of monetary-policy instruments to match the number of targets.¹

MONETARY-POLICY STRATEGIES IN SMALL OPEN ECONOMIES

In an open economy with free movement of capital one generally has to choose between exchange-rate stabilisation or monetary-policy autonomy. The reason is that a monetary policy based on domestic targets, a fixed exchange rate and free movement of capital constitute a trilemma since only two of them can be mutually consistent in the long term, cf. e.g. Obstfeld, Shambaugh and Taylor (2004).²

The two examples of monetary-policy strategies in the above discussion of the model – an exchange-rate target and an inflation target – meet this basic condition. Both strategies are aimed at meeting the overall monetary-policy target of price stability, but in different ways. The exchange-rate target is an external target under which the central bank attempts to stabilise the price development by maintaining a fixed exchange rate as the nominal anchor of the economy, whereas the inflation target is an internal target where the medium-term inflation target serves as the nominal anchor.

In addition to the basic theoretical argument that a fixed exchange rate is inconsistent with monetary-policy autonomy in a scenario with free movement of capital, a number of other aspects of a fixed-exchange-rate policy make it difficult to combine this strategy with e.g. an inflation target.

Firstly, there is a significant difference between the two strategies in that the transmission from the short-term interest rate to the exchange rate is usually instant, while the full effect of interest-rate changes on inflation and the output gap typically lags by up to two years.

The theoretical reason why changes in the short-term interest rate often have an immediate impact on the exchange rate is that exchange rates are "forward-looking" asset prices. In addition to monetary-policy measures at home and abroad other "news" about economic trends in the two counties influencing the expected future yield on the two currencies may rapidly lead to substantial capital flows and changes in the

¹ An early survey of the significance of uncertainty as to the effect of adjustments in the instrument on the target variable can be found in Brainard (1967). An example of a more recent analysis of the same issue is Giannoni (2002).
² In a credible fixed-exchange-rate regime, the interest rate is close to the interest rate in the anchor country since the yield on placements in the two currencies must be the same when capital moves freely and the exchange rate is not expected to change. This makes it impossible for the central bank to conduct autonomous monetary policy at the same time since this requires the ability to set a rate of interest which differs from that of the anchor country.
exchange rate. Consequently, a central bank with an exchange-rate target must always be ready to change its short-term interest rate to counteract undesirable exchange-rate fluctuations. Since speculators can make large gains if pressure on the currency results in its devaluation or revaluation, the central bank must be ready to change the rate of interest substantially in order to defend the currency in a currency crisis.

Matters are further complicated by the fact that there is no economic theory providing satisfactory forecasts of the short-term development in the exchange rate, cf. e.g. Meese and Rogoff (1983) and Faust, Rogers and Wright (2003). As a result, a central bank wishing to manage the exchange rate cannot rely on model-based calculations. This is another reason why the central bank's strategy must be based on continuously reacting to the current development. In a credible fixed-exchange-rate regime, exchange-rate expectations will be close to the exchange-rate target, and changes to the short-term interest rate to stabilise the current exchange rate will therefore not affect longer-term interest rates.

When monetary policy is based on flexible inflation targeting, the underlying purpose is to bring inflation and the output gap as close as possible to the targets set. The task of the central bank is complicated by the considerable sluggishness in the development in prices and output. In addition, the pass-through from a change in the short-term interest rate to aggregate demand – including consumption and investments – involves uncertainty in respect of both strength and speed.

The above model and the subsequent discussion point to the risk that the targets for inflation and the output gap cannot be precisely met at all times by the central bank applying the interest-rate instrument. In addition, the central bank's prioritisation of the two targets can in practice appear unclear and variable over time. Owing to the sluggishness in inflation and output, shifts in focus, like interest-rates changes, will take a relatively long time to pass through and are not likely to cause abrupt effects.

In countries with inflation targets the exchange rate is an important monetary-policy transmission channel in that changes in the short-term interest rate to influence the future price development will quickly impact on the exchange rate and thus import prices. In addition to the fluctuations attributable to monetary-policy adjustments of interest rates, it is well known that floating exchange rates entail substantial short-term volatility and that prolonged deviations from equilibrium

\[\text{In an economy with low or moderate inflation, many prices only seldom change because the costs of considering and introducing price changes often exceed the advantages. Likewise, adaptations of the output of goods and services to changing demand are slow because fluctuations in sales are initially addressed via stockbuilding or stock depletion.}\]
values may occur. Such deviations may complicate the fulfilment of the targets for inflation and the output gap. There are thus no indications that these countries, in return for higher exchange-rate volatility, have lower volatility in inflation and output than countries pursuing a fixed-exchange-rate policy, cf. Christensen and Hansen (2003) for a survey of the development in the Nordic countries in recent years.¹

Altogether there are thus several factors rendering it particularly difficult for a central bank with an exchange-rate target also to pursue other targets. The exchange rate is a forward-looking asset price that is instantly affected by monetary-policy changes at home and abroad and shifts in monetary-policy expectations. Consequently, monetary-policy measures aimed at meeting other targets – e.g. an inflation target or an output-gap target – will in most cases also lead to fluctuations in the exchange rate, which will therefore deviate from the target.

If the central bank does not have a firm exchange-rate target, but rather wishes to keep the exchange rate within a band, a certain room for manoeuvre in setting interest rates is achieved. A broad target zone may thus give the central bank more monetary-policy scope to also pursue e.g. an inflation target, but this will be at the expense of the central bank’s influence on the exchange rate. If the market rate does reach the fluctuation limits, the central bank will be forced to either move/abandon the band or defend the exchange rate by changing the interest rate. If the central bank opts for the latter solution, there is a risk that the bank will experience problems meeting its inflation target.

STRATEGIES TOWARDS EURO AREA MEMBERSHIP

For the new EU member states, euro area membership is the guiding light for monetary and foreign-exchange policy in the coming years. Adoption of the euro requires that a number of convergence criteria are met, including low inflation and participation in ERM II without severe tensions for at least two years, and without devaluing against the euro. Price stability in a broad sense is a prerequisite for simultaneously meeting the conditions of stable domestic price development and a stable exchange rate.

Owing to the convergence criteria, stabilisation of the exchange rate within the framework of ERM II will sooner or later be a condition of monetary and foreign-exchange policy in each of the acceding counties. Consequently, reorientation of monetary policy will be necessary if the

¹ The authors point out that part of the explanation may be that a medium-term orientation of fiscal policy and a consistent fixed-exchange-rate policy shield an economy from the domestic shocks attributable to short-sighted fiscal policy and exchange-rate fluctuations.
central bank does not currently operate with an exchange-rate target and the exchange-rate volatility is substantial.

In this connection the above discussion shows that it can generally be a problem to have other monetary-policy targets when aiming to stabilise the exchange rate. In the specific case where the requirement of a stable exchange rate and low inflation only applies for a short period, exchange-rate stability and an inflation target will not necessarily conflict. For instance, Finland and Spain had no major problems maintaining inflation targets as part of their monetary policies up to their adoption of the euro. Monetary policy did not stand alone, however, since the convergence strategy in many of the present euro area member states was a package, also comprising fiscal and structural policies, cf. e.g. Papaspyrou (2004). Nevertheless, the development in Hungary in recent years shows that the risk that the central bank may find it difficult to meet two targets is not only theoretical.

In the period up to euro area membership, monetary policy will also be affected by a number of more technical issues. If the announced membership date is credible, the yield curve in the member state in question will be bound to the yield curve in the euro area from that time. This means that monetary policy can only affect interest rates if their maturities do not go beyond the time of the expected introduction of the euro. As this time draws near, monetary policy will therefore become still less effective. Owing to the sluggishness in the transmission from the monetary-policy interest rate to output and inflation, the impact of monetary policy on these variables will weaken sooner than its impact on e.g. the exchange rate.

Another important relationship is interest-rate parity, which links the rate of interest in the acceding country to the rate of interest in the euro area and the current and future exchange rates between the currency of the acceding country and the euro. Given the rate of interest in the euro area and the market's expectations of the exchange rate on entry, a change in the short-term interest rate in the acceding country will lead to a change in the (spot) exchange rate. Unless the market's expectations of the exchange rate on entry changes at the same time, a change in the monetary-policy interest rate in the acceding country will thus lead to an immediate change in the exchange rate. It will therefore follow:

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1 Reviews of the Finnish and Spanish experiences can be found in Korhonen (2001) and Gutiérrez (1998), respectively.
2 At the beginning of 2003 the central bank had to ease monetary policy considerably in order to keep the currency within the fluctuation band vis-à-vis the euro. After a devaluation in June, the central bank tightened its monetary policy on several occasions during the rest of the year in order to prevent the currency from weakening too much. The central bank succeeded in keeping the currency within the fluctuation band, but the announced inflation target for end-2003 was exceeded, inter alia as a result of the weakening of the currency over the year.
be difficult for the central bank to change interest rates in order to e.g. meet an inflation target without creating exchange-rate volatility.

When monetary policy is aimed at keeping the exchange rate stable, the market will continuously assess whether this strategy is credible, and any doubt as to the sustainability of the target may lead to speculation against the currency. In the time up to a country’s entry into a currency union focus on the sustainability of the strategy chosen is not likely to be less intense. This makes further demands on the central bank, which must be ready to apply monetary policy to address speculative attacks. To the extent that the doubt about the strategy for euro area membership is a result of economic policy in general, it may, of course, also be necessary e.g. to adjust fiscal policy.
LITERATURE


