

Monetary and exchange-rate policy outside a European Monetary Union

Hans Genberg*

Summary

Stage Three of the EMU is due to start in 1999. The replacement of national currencies with the euro is then to be completed in 2002. If joining the monetary union is the ultimate objective of Swedish policy, then the best strategy would be to join immediately in 1999. Postponing entry to introduce structural changes intended to facilitate membership is only likely to postpone the adoption of such structural adjustments.

If Sweden does not meet the convergence criteria for joining the EMU in 1999, then it should campaign vigorously against the introduction of an ERM II with narrow exchange-rate bands in the transition period to subsequent membership.

Remaining outside the EMU on a permanent basis may be contrary to the Maastricht Treaty. If this course is nevertheless followed, inflation control should be the overriding objective of monetary policy. Fiscal policy should be aimed at eliminating excessive fiscal deficits and further buildup of government debt.

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This paper looks at the implications for the conduct of monetary and exchange-rate policies of Sweden staying outside a monetary union in Europe. Section 1 briefly describes possible monetary arrangements in the EU. Particular attention is paid to:

- How monetary policy is likely to be conducted once the monetary union is established.
- The relationship between first-round members and those who will only be allowed to join in a second stage.

Section 2 describes and analyses Sweden's options. Then it outlines the logic of each option and the implied constraints on monetary policy. It also addresses the consequences of not meeting the EMU convergence criteria and of a postponement of the creation of the union.

Section 3 examines the principles that should guide the conduct of monetary and exchange-rate policy outside a monetary union. The conclusions from the literature dealing with rules versus discretion in monetary policy are used to discuss the appropriate objectives and implementation strategies for monetary policy. Lessons from five countries, which have used quite different strategies to control inflation, are drawn.

Section 4 summarizes the main implications of the analysis for the issue raised in the title of the paper.

1. Alternative monetary arrangements within the EU

To evaluate the likely consequences for Sweden if it is unable to or decides not to participate in a monetary union in Europe, it is necessary to clarify not only the nature that this union might take if it actually comes about, but also what monetary and exchange-rate arrangements might emerge if it does not.

So the following discussion is structured according to three possible scenarios:

- A monetary union is created in Europe according to schedule (Section 1.1).
- The creation of a monetary union is maintained but its inception is postponed (Section 1.2).
- The whole project is abandoned (Section 1.3).

A final section attempts to outline the monetary landscape in Europe according to the most likely scenario.

1.1. Monetary union according to schedule

According to the current schedule, the Council of Ministers of the EU will decide in early 1998 which countries will be able to participate in Stage Three of the monetary union, which is to begin on January 1, 1999. The decision will be based in part on recommendations by the Commission and the European Monetary Institute, which in turn will depend on the economic performance of candidate countries during 1997. Particular attention will focus on the so-called convergence criteria related to exchange-rate movements, inflation rates, interest rates, government budget deficits and debt. If a very strict interpretation of Maastricht Treaty is maintained, and if current economic projections for 1997 are used as a guide, only a handful of countries are likely to qualify for membership in the monetary union from the outset.

The main stumbling block is likely to be the level of outstanding government debt relative to GDP and the budget-deficit ratio. At present, only Germany, France, Austria, Luxembourg, and the Netherlands appear to have a good chance to meet the required limits on these variables.¹ If a more lenient interpretation is made of the convergence criterion related to the debt ratio, then Belgium, Finland, and Ireland are also likely to qualify.² Finally, continuation of strong adjustment measures and favorable economic developments may al-

¹ Note that a European monetary union without either France or Germany appears inconceivable. Should either of these countries fail to meet the convergence criteria, the union will either not come about at all on schedule or the weight of these criteria in the final decision on eligibility will be diminished.

² Thygesen (1996) consider the eight countries mentioned above as likely initial participants.

low Italy, Sweden, Spain, and Portugal to squeeze in. Greece is quite unlikely to fulfill even a lenient interpretation of the convergence requirements, and Denmark and the United Kingdom do not currently consider themselves candidates for entry.

The start of Stage Three according to schedule may thus involve one of several configuration of countries, from a quite small circle centered around France and Germany to a relatively comprehensive group representing most of the EU. As is argued presently, several issues concerning the operation of the monetary union itself and the constraints facing those that remain outside will be influenced in significant ways by the outcome.

1.1.1. Monetary policy in the union

Monetary policy in the union will be designed by the European Central Bank (ECB) located in Frankfurt and implemented with the help of the central banks of the member countries. The ECB will have price stability as its foremost objective and will be able to pursue this objective with a great deal of formal independence from political pressures both in individual member countries and from EU institutions. The indicator of price stability will presumably be some average price index defined over all countries, which are members of the union. Hence, the larger the number of countries, which are included in this average, the less the targeted price level will be influenced by idiosyncratic shocks to the relative price of national non-traded goods to union-wide traded goods. This is likely to facilitate the task of maintaining overall price stability. A more comprehensive union should also lead to less variability in the prices of traded goods for any given path of the union-wide general price level. Finally, the size of real exchange-rate variations *vis-à-vis* non-members should be reduced.

Which strategy the ECB will adopt to ensure that the objective of price stability will be attained is not yet fully determined. The most likely possibility is that the ECB will adopt the model of the *Bundesbank* and establish an intermediate target in the form of a union-wide monetary aggregate. The desirability of such a strategy depends in part on the stability of the demand function for the chosen aggregate. Because the creation of a monetary union represents a considerable change in the monetary environment for the residents of the member countries, it seems likely that their holdings of money for transactions, precautionary, and store-of-value purposes may display a cer-

tain amount of instability. So this strategy may be hazardous, at least during some years of adaptation to the new environment. The influence of the size of the union on the stability of the demand for money cannot be determined *a priori*. A smaller, more homogeneous group may limit the problem of instability just mentioned. But to the extent that currency substitution among all EU monies is significant, a larger monetary union would limit instability of money demand from this source.

A currently popular alternative to using a monetary aggregate as an intermediate target is to focus directly on the ultimate objective, inflation.³ To be operational, a strategy based on inflation targeting must be combined with some procedure that indicates how the instrument at the disposal of the ECB should be managed on a day-to-day basis. In the case of some of the countries—Canada, Finland, New Zealand, and Sweden in particular—which are currently following this type of strategy, the exchange rate plays an important role in this respect.⁴ For a small monetary union, which would not have significant international market power regarding importables and exportables and for which prices of these goods would make up a relatively large portion of the aggregate price index, the exchange rate could continue to be an important information variable for a strategy of inflation targeting.

But because the union involves more and more countries, the relative importance of external prices, and hence the exchange rate, for domestic inflation diminishes, and some other operational procedure would have to be found. While the ECB acquires experience and knowledge about the structural relationships between monetary policy instruments and the ultimate target variables in the monetary union, it is likely that monetary policy will be determined by a considerable degree of discretion and trial and error. To establish credibility, the ECB may, under these circumstances, have to be even more hard-nosed than the *Bundesbank* in paying attention to other objectives than price stability in the short run.

³ See Leiderman and Svensson (1995) for a collection of studies describing and evaluating recent experiences with inflation targeting as a monetary policy strategy. Note in this context that von Hagen (1995) argues that the policy of the *Bundesbank* can also be characterized in this way.

⁴ See the corresponding country studies contained in Leiderman and Svensson, (1995).

1.1.2. *Credibility of monetary policy and the size of the monetary union*

An ECB in a small monetary union centered around Germany may be able to retain some of the credibility currently enjoyed by the *Bundesbank* simply because the *Bundesbank* representative would have a relatively larger voice in a small union than in one made up of many countries. A smaller union would also be more likely to be made up of countries that have similar monetary policy objectives. As more countries are added to the union, there is a risk that increasingly diverse regional concerns will influence policy decision to the detriment of the price stability objective. The initial credibility capital of the ECB would suffer and instead, it would have to be built over time through a successful track record. Long-term interest rates would be correspondingly higher and there would be less scope for short-term counter-cyclical monetary policy.

1.1.3. *Exchange-rate policy vis-à-vis non-EU currencies*

One of the reasons why European countries have been concerned with fluctuations in their US dollar exchange rates is that such fluctuations have tended to cause tensions among European currencies. As individual currencies are replaced with the euro, there is less reason for such tension to arise among the members of the monetary union, and hence for any concern about the dollar exchange rate. So it is likely that the euro/USD and the euro/yen exchange rates will be allowed to float relatively freely. The larger the monetary union, the greater the force of this argument as far as member countries are concerned. On the other hand, for countries that do not qualify for initial membership in the monetary union, the fewer they are, the higher the probability that sudden shifts in international capital flows will create large exchange-rate movements or speculative attacks against them. As before, this is an argument that builds on the notion that there is safety in numbers. So that the fewer outsiders there are, the greater the likelihood that any one of them will be singled out as a candidate for capital inflows or outflows.

1.1.4. *Transition problems during Stage Three*

Between 1999 and mid-2002, national currencies continue to exist in the monetary union. Exchange rates between them will be *irreversibly* fixed, and monetary policy will be determined at the ECB. It is clear

that for this transition period to be viable, all monetary policy autonomy of individual countries must be abdicated. In addition, should the resolve of the authorities to stick to the fixed conversion rates be tested by the markets, there must be literally unlimited intervention support of the weak currency. The larger and more heterogeneous the union during this stage, the greater the chance that such intervention support will actually be called for.

1.1.5. *The insider-outsider problem*

Assuming that not all countries that would like to join the EMU in the short to medium term will be allowed in, an important issue that is currently under discussion is the nature of the relationship between the members of the monetary union (the *ins*) and the non-members (the *outs*).⁵ In other words, what will be the conditions for later admission to the union?

It seems likely that the convergence criteria that apply to current membership will be maintained as a minimum standard for future candidates. The reason is three-fold:

1. The convergence criteria are stated explicitly in the Maastricht Treaty.
2. The *ins*, which have implemented policy adjustments to meet the criteria, are likely to consider it inequitable if the current *outs* will be admitted on easier terms in the future.
3. Some actually consider fulfillment of the convergence criteria useful for the stability of the monetary union after the entry of the country in question.

It can be argued that several of the criteria represent useful objectives in their own right regardless of the issue of entry into a monetary union, and that some external constraint makes it less costly for domestic policy makers to achieve these objectives. Low inflation, long-term interest rates, and public-sector deficits probably belong in this category. So there is relatively little said about them in the *ins* versus *outs* debate.⁶ The main controversy relates to exchange-rate policy. The Treaty (Article 109m) says that the exchange rate of any

⁵ The relationship between EU countries who do not want to join the monetary union at all during the foreseeable future will be discussed in Section 3.

⁶ The importance of the national debt ratio is more controversial, but the necessity to fulfill the 60 percent limit is in any case subject to some interpretation.

member of the EU is of common concern for all other members. How should this be interpreted and what implications are there for relations between the *ins* and the *outs*?

To answer this question it is important to first determine why the exchange rate is (or should be) of "common concern" and why it is figured among the convergence criteria. Unlike an inflation rate similar to other member countries (which may be helpful because it indicates a convergence of inflationary expectations and changes in wages) and a low budget deficit (which will lessen the chance that other union members will be pressured to contribute to its financing), exchange-rate stability *per se* does not seem to be an important indicator of the ease with which a country can join the monetary union. If other indicators of economic performance and convergence are met, there does not seem to be any good economic reason why fluctuations in the external value of a currency should be an important criterion for determining whether it is prudent to admit the country into the monetary union and *eliminate that currency from circulation*.⁷

So the reason why the exchange rate raises common concerns is not that instability would make insertion into the union more difficult, but that it might create problems *before* the country has been admitted. One concern appears to be the possibility that outsiders may attempt to do competitive, beggar-thy-neighbor, depreciations.⁸ An-

⁷ In fact, if monetary and fiscal policies are judged adequate, and if other convergence criteria are met, it is perhaps even more important to admit a country with an unstable exchange rate into the union than a country with a stable exchange rate, because doing so would eliminate this currency and hence a source of instability from the system. In this sense an exchange-rate criterion is redundant *as an indicator of the adjustment difficulties associated with admitting the country into the monetary union*. It may perhaps be argued that a stable exchange rate represents the financial markets' seal of approval of the policies followed by the country and is therefore a good indicator of the credibility of these policies. This view seems to be based on the notion that short-run exchange-rate movements are determined mainly by current macroeconomic policies or correctly anticipated future policies. Empirical evidence has not borne this out.

⁸ The alleged problems that the depreciation of the Italian lira after 1992 has caused for intra-EU trade is often brought up as an example showing that this concern should be taken seriously. While this depreciation certainly has caused some difficulties for other countries, it is less obvious that it should be considered a deliberate policy of competitive depreciation. First of all, part of the adjustment of the lira exchange rate should simply be viewed as undoing the real appreciation that had been accumulated prior to the crisis. Secondly, it remains to be proved that the adjustment of the lira was a deliberate strategic choice rather than market-determined. The distinction is important because the appropriate solution to the problem caused

other is that market forces can create misalignments that are undesirable. In either case, a proposed solution is to create a new variant of the ERM and to require each outsider to have belonged to this system before being eligible to join the monetary union. But it is not clear that this solution can be justified on economic grounds. The experience from fixed exchange-rate regimes as summarized in Svensson (1994) indicates that a pegged exchange rate does not necessarily force countries to pursue stable policies. In other words, if countries misbehave for some reasons, an ERM II is not going to stop them. Besides, an ERM II will only work as long as countries decide to make it work, that is, as long as they pursue policies consistent with it. But in this case, the exchange-rate arrangement is not needed. So if it is felt that there is a significant risk that outsiders will take advantage of their position to implement policies that are detrimental to insiders, then some other form of policy coordination and coercion than an ERM II will be appropriate.

The other argument brought up in support of the creation of an ERM II suggests that market-induced exchange-rate misalignments can occur even in the absence of policy misalignments. A fixed-parity system with intervention obligations would eliminate these misalignments through two channels: (1) Interventions of the central bank in the foreign-exchange markets, and (2) elimination of speculative bubbles for the exchange rate. Whether or not these are powerful arguments depends, on the one hand, on whether foreign exchange markets are likely to produce severe misalignments in the absence of policy misalignments, and whether an ERM II is likely to improve matters.

To answer the first question one needs to decide what is meant by *severe* misalignment. If fluctuations of, say, plus/minus 10 percent are acceptable, then I suspect that stable macroeconomic policies will be sufficient without resorting to formal exchange-rate commitments.

The experience of Switzerland since the late 1970s would be a case in point. The Swiss franc has stayed within such a range vis-à-vis the German mark since the early 1980s even though no formal fixed exchange-rate system has existed. Persson and Tabellini (1996) also argue that exchange-rate stability does not necessitate a pegged exchange rate. They claim that successful and credible inflation targeting

by exchange-rate fluctuations presumably depends on the sources of these fluctuations.

by outsiders and insiders would result both in low and stable inflation rates and relatively stable exchange rates. If *relatively stable* is interpreted as staying within the type of range indicated earlier, this is probably a correct assessment.

To the extent that speculative bubbles are a significant feature of international financial markets, will they be eliminated by an ERM II? Chances are that they will not, unless the bands remain very wide. The reason is that the fixed-rate regime itself may be subject to speculative attacks. Eichengreen and Wyplosz (1993) claim that the experience of the ERM, in 1992 and 1993, shows that the possibility of self-fulfilling speculative attacks on a pegged exchange rate must be taken seriously. Even if the judgment of these authors is not unanimously shared, it seems plausible that a formal commitment to defend a specific parity may at times serve to focus expectations and speculative activities. An ERM II would then be a source of exchange-rate instability rather than a solution.

What recommendations follow from this analysis? It seems to me that two principles should be kept in mind in the design of a transition regime for the outsiders:

- If the objective of the transition regime is to prevent the outsiders from pursuing beggar-thy-neighbor policies—or, putting it more politely, to induce them to adopt stable ones—an arrangement based on a pegged exchange rate is not likely to be effective. Some consultation procedure involving macroeconomic policies themselves would be more appropriate. To be acceptable to both parties such a procedure would have to contain not only coercion but also positive incentives for *good behavior*.⁹
- But even good behavior cannot necessarily guarantee exchange-rate stability. External shocks (for example, instability in Japan or the U.S.) may lead to capital flows that have different impact on outsiders and insiders and hence to large exchange-rate swings. So the policy consultation procedure would have to include the exchange rate as one of the variables to be focused on. But declaration of parities should be avoided. If such parities are deemed necessary from a legal point of view, then the associated bands should be wide enough to eliminate the risk that the parities themselves become a focus of speculative capital flows.

⁹ See Wyplosz (1996) for an explicit proposal.

These two principles appear to have been considered by the European Council at its meeting on December 13-14, 1996 in Dublin, where it was decided that the creation of an ERM II as of January 1, 1999 would be desirable. Although the details of this arrangement will not be decided before June 1997, it will almost certainly be based, like the current ERM, on central parties with wide bands. Furthermore, credit facilities will be available to support exchange-market interventions. Membership in the ERM II will not be compulsory. But to ensure continued convergence of the EU economies, non-members (and member countries, of course) will be expected to put forward economic policy programs for evaluation by the Council. The Council may issue non-binding recommendations to modify domestic policies to ensure stability and convergence.

1.2. Monetary union is postponed, but it remains an objective

There is a non-negligible possibility that the start of Stage Three of the monetary union will be postponed because not enough countries will have fulfilled the convergence criteria by early 1998. What will happen then?

The most likely scenario is that the ERM will continue in its present form and that the convergence criteria for starting the EMU will be maintained unchanged. Any weakening in the convergence criteria is unlikely because this could easily lead to a loss of confidence in the stability of the monetary union. It is also unlikely that the criteria will be strengthened because this would risk putting off the start of the union even further. The one change in the ERM that might be contemplated is a narrowing of the bands of permitted currency fluctuations. For reasons elaborated in the previous section, such a change should be resisted. The exchange-rate part of the current system is functioning quite satisfactorily. Narrower bands will not by themselves lead to greater convergence in policies, and they could become the focus of speculative attacks. This is all the more so because the postponement may lead to expectations about exchange-rate changes within the ERM.

So that monetary integration process does not lose momentum, it is likely that some form of confidence-building initiatives will be taken. These might involve intensifying the work to improve the intra-European payments and settlement mechanisms, on the one hand, and strengthening policy cooperation and coordination on the other.

The countries that are currently not members of the ERM are likely to face increased pressures to join as a pre-requisite to membership in the monetary union. This raises an important question for countries like Sweden, which have adopted a monetary policy strategy based on independent inflation targeting rather than an exchange-rate based policy: Would ERM membership require a modification of the current policy strategy? Provided that the bands of permitted currency fluctuations within the ERM are maintained at their current size, the answer is probably no. If, on the other hand, the bands are narrowed significantly, joining the ERM would necessitate a change in policy with the result that the credibility capital, which has been built on the current strategy, may be lost. This is another reason to resist proposals to return to narrower bands within the ERM.

1.3. The project for a monetary union is abandoned

In view of the post-Bretton-Woods' evolution of monetary arrangements in Europe, it is very unlikely that the goal of a monetary union in Europe will be abandoned definitively. This would be regarded as such a severe setback for economic and political integration in general that statesmen, who have invested a lot of capital in this process, would fight hard not to see it perish. Hence, the circumstances under which it would be abandoned are so extreme and unlikely that it does not seem even useful to attempt to predict what monetary arrangement would replace it.

1.4. The most likely outcome

Although the decision on whether a sufficient number of countries are ready to join is still far away, my personal guess—based on current information—is that a monetary union among at least a core group of countries (Germany, France, Netherlands, Belgium, Ireland, Austria, Luxembourg) will be created according to schedule.¹⁰

Monetary policy will be conducted according to a pragmatic implementation of a strategy using a monetary aggregate as an intermediate target. Of course price stability will remain the ultimate target. Because this union is relatively small and homogeneous, credibility capital from the *Bundesbank* will be diluted only to a limited degree.

¹⁰ At this stage I am deliberately leaving out opinion about Swedish participation.

Most of the remaining EU countries will want to join in the near future and will try to fulfill the convergence criteria as soon as possible. The conditions under which the outsiders will be allowed in will be largely the same as the present convergence criteria. Proposals to limit permissible exchange-rate fluctuations, beyond what is implied in the current ERM, will be introduced and debated. The outsiders should resist such proposals.

Stage Three and the transition period for outsiders may well involve some tricky obstacles. Here are just three:

- *Testing* by the *markets* of the irrevocably fixed rates.
- *Destabilizing* capital flows from or to non-members due to external shocks or uncertainty about the prospects for outsiders to join the union.
- Difficulties of achieving a low and stable inflation rate within the union leading to a loss of credibility of the ECB.

2. Options for Sweden

The options open to Sweden and a comparison between them obviously depends on whether or not Stage Three of the monetary union will effectively begin on schedule, and whether or not Sweden will be eligible for membership. So the discussion which follows must, by necessity, consider several alternative scenarios. It begins by dealing with the situation where the monetary union starts operating as planned, and Sweden is invited to join. It then considers how the situation would change if the monetary union cannot begin in 1999, and then finally the consequences of Sweden not qualifying.

2.1. There is a monetary union and convergence criteria are met

Suppose that a monetary union is created in Europe according to schedule and that Sweden has fulfilled all the necessary convergence criteria by early 1998 when the question of membership will be decided by the Council of Ministers. In this case, what options are available for Sweden, and what considerations should be kept in mind when choosing between them? This section discusses three broad possibilities:

1. Joining the monetary union is an objective in the near or medium term.

2. Sweden decides not to join the union but to adopt another fixed exchange-rate arrangement.
3. Sweden stays outside the union and adopts a floating exchange rate.

The discussion which follows focuses on the macroeconomic consequences of each of these alternatives. But keep in mind that a decision to stay outside a monetary union on a durable basis raises important issues related to the integration of the country into the EU more generally. It might happen, for example, that a country which does not want to be part of the monetary aspects of European integration will be marginalized in other areas such as trade policy and foreign policy. This would not be the result of any formal or legal decisions taken by the EU, but rather as a result of not being part of the construction of the monetary union, which arguably could become the most important symbol of European integration.

2.1.1. Joining the union remains an objective

If joining the monetary union in Europe remains the country's objective, the only question becomes whether to do so from its inception or later. Two types of arguments can and have been brought up in favor of a postponement. The first, exemplified by Jonung (1996), notes that adjustment in a monetary union to country-specific shocks is less costly if the economy in general, but the labor market in particular, is free from rigidities of all kinds. As the Swedish economy is said to suffer from such rigidities, it is suggested that a process of structural and institutional reforms must be undertaken before entering a monetary union. While the reforms are introduced to make the economy more flexible, exchange-rate adjustments and/or domestic monetary policy can be used to respond to external disturbances.¹¹

This reasoning raises the question familiar from the earlier debate in the context of European monetary integration between the monetarists and the economists, namely, whether it is easier to introduce required structural reforms before or after they are made necessary by monetary unification?

¹¹ It is assumed here that some degree of exchange rate flexibility is compatible with later entry into the union.

The economists' answer was that structural change must come first—lest the cost of monetary unification should be so high that it would fail.

The monetarists, on the other hand, argued that institutional change will come about first and foremost as a reaction to changes in external circumstances and that a monetary unification would therefore speed up necessary reforms in labor markets.

In the Swedish context, the tradition of having used currency devaluations to solve macroeconomic imbalances and to avoid difficult structural adjustments is another element to consider. The process of institutional change may lead to tensions and disputes if it is not clear whether the authorities will be able to withstand pressures to “solve” the problems by devaluation instead. In recent terminology, the commitment to reform may not be regarded as credible in the absence of an external constraint, and the cost of undertaking them will be correspondingly higher. So even if one admits that adjustments in the Swedish economy would be smoother if labor and other markets were more flexible, it does not necessarily follow that the pursuit of such flexibility would be less costly outside rather than inside a monetary union.¹²

Another argument in favor of not joining the monetary union from the outset says that the Stage Three transition period and the process of getting used to a single currency is likely to involve some uncertainty and be subject to adjustment costs. These costs could be avoided by staying outside the union until the most serious glitches have been ironed out. While it is probably true that some adjustment difficulties may be avoided by waiting and learning from the experiences of the original members of the union, such a strategy does not seem to be in the spirit of international solidarity and future economic cooperation.

If a decision has been taken to postpone joining the monetary union, it will of course be necessary to define a strategy for monetary policy during the period of transition. Section 4 discusses this further.

¹² It is of interest in this context to recall the Austrian experience with its “hard-currency policy” of fixing the shilling rigidly to the German mark. Hochreiter and Winckler (1995) argue that it can be regarded as successful even though Austria initially did not satisfy the criteria associated with optimum currency areas, notably because the labor market in Austria was quite rigid. But the hard-currency policy, and domestic policies taken in conjunction with it, brought about greater flexibility of the Austrian economy at moderate costs.

But one important point for the choice between joining or staying outside must be brought up here. If the solution to the insider-outsider problem involves an exchange-rate commitment with a narrow band, then the advantages of staying outside are severely diminished. A fixed exchange rate, with a narrow band, imposes severe constraints on the degree of policy autonomy. If the reason for not joining immediately is to use such autonomy to ease adjustments while structural reforms are introduced, then the argument loses much of its force.

2.1.2. Fixing the exchange rate is desired, but not in the context of the EMU

It has been argued that the composition and directions of Swedish international trade makes the U.S. dollar exchange rate more important for Sweden than for many other EU countries. Consequently, it could be suggested that the optimal currency for Sweden to peg to is not the euro but a basket in which the dollar has a significant weight.

While unilaterally adopting a fixed exchange rate would permit the choice of an optimal currency basket to peg to, this option has two potential drawbacks. First, even a rigidly pegged exchange rate is not the same as joining a currency union in terms of reducing transaction costs and importing credibility. Because the national currency continues to exist, the cost of exchanging it for foreign currencies remains, and the risk of devaluation is larger than within a monetary union.¹³ Hence, interest rates will incorporate a risk premium to the detriment of investment and growth.

Other drawbacks of a unilaterally fixed exchange rate are that:

- Such an arrangement is asymmetric in that there is no influence on the monetary policy pursued by the country(ies) to which the currency is pegged.
- Contrary to a multilateral arrangement, there is no intervention support from other countries.

Taken together these arguments suggest that electing to stay outside a EMU and unilaterally pegging the Swedish crown to some other currency is not an attractive option.

¹³ A member of a monetary union can of course renounce membership and reinstate its own currency. This is surely more unlikely than changing the external value of an already existing currency.

2.1.3. *Staying outside the EMU and floating independently*

The option which provides the greatest amount of monetary independence is of course to stay outside the monetary union and let the crown float independently.¹⁴ The well-known advantages of this solution is that it would allow the exchange rate to assume the role of automatic stabilizer, and it would permit the *Riksbank* to develop and implement a monetary policy best suited for the country. This could prove to be valuable in the event that the ECB cannot deliver price stability inside that union.

The potential disadvantages of the independent course are also well-known:

- Potentially *excessive* exchange-rate movements leading to misalignments.
- Possibly higher domestic inflation if the *Riksbank* cannot sustain a stability-oriented strategy.
- Transactions costs in international trade associated with the existence of a separate currency.

A comparison of these benefits and costs is not the purpose of this paper, so nothing more about them is discussed. But the conduct of monetary policy—if Sweden does stay outside the monetary union—is discussed in Section 3.

2.2. What is the difference if the start of the monetary union is postponed?

With the obvious exception that joining Stage Three in 1999 will no longer be a possibility, the options available to Sweden, in case the start of the monetary union is postponed, are essentially the same as those discussed in the previous section. But the evaluation of these options is affected. As Section 1 notes, if it occurs, the postponement of Stage Three will be due to the failure of a sufficient number of countries to fulfill the convergence criteria, and a version of the current ERM will continue. Countries that want to join the monetary union, according to the revised calendar, will probably be required to enter the ERM. Provided the band width stays at ± 15 percent, this should not constitute a hurdle. But if the band width is significantly

¹⁴ Here, it is assumed that a completely flexible exchange rate is compatible with the Maastricht Treaty. This is contested.

reduced, the consequences for monetary policy are significant. As is argued in Section 3, in this case, inflation targeting as currently implemented is no longer likely to be feasible, and greater emphasis will have to be put on the exchange rate in the day-to-day conduct of monetary policy. So the comparison of joining—as opposed to staying outside the union—is affected.

2.3. What happens if the convergence criteria are not met?

Until now, it has been assumed that Sweden has met the convergence criteria required for admission at the outset of the union. If this is not the case, the options available will be more restricted, not only because membership is excluded, but also because participation in transition arrangements could become more difficult.

The most likely reason for a failure to qualify for the monetary union would be an excessive fiscal deficit. Although recent outcomes and projections are quite encouraging, the most likely reason for a failure to satisfy the convergence criteria would be an excessive fiscal deficit. A lax fiscal policy, combined with a restrictive monetary policy, would gradually lead to an overvalued currency in a fixed-rate context, and it would become increasingly difficult to maintain the exchange rate inside a band under an ERM II.

Failure to maintain the current non-inflationary monetary policy would of course also preclude a sustained membership in an ERM II. So in both cases, the most prudent strategy to follow would be to let the currency float while seeking to re-establish domestic macro-economic stability.

Suppose that the fiscal convergence criteria are not fulfilled at the time the decision on entry will be taken, but that the process of budget consolidation is on a track that will lead to convergence shortly thereafter. Suppose further that Sweden would like to join the monetary union but is apprehensive about entering an ERM II as a result of the experience in the fall of 1992 with a pegged exchange rate. Furthermore, if union members have judged floating to be incompatible with future membership, what remains as an option?

A radical solution to this dilemma would be to mimic membership in the union by converting the *Riksbank* to a currency board and *irrevocably* fixing the value of the crown to the EMU currencies that

way.¹⁵ Of course this solution would mimic membership in the union only in some respects. In particular, Sweden would have no influence over the common monetary policy and could not count on the union members for any help in maintaining exchange-rate stability. But this arrangement would enable a speed up of the process of entering the monetary union as a *bona fide* member.

3. The conduct of monetary and exchange-rate policy outside a monetary union

If Sweden participates in the EMU, the design of monetary policy will be done at the ECB in Frankfurt. The representative of the *Riksbank* on the Governing Council will participate in this design. But the role of the *Riksbank* will be limited to the implementation of decisions taken in Frankfurt. But should Sweden decide to stay outside the EMU, then the *Riksbank* must develop its own strategy regarding monetary and exchange-rate policy. The main issues to be considered in this context is discussed in the next section. General issues surrounding the objectives and implementation of monetary policy are considered first, followed by a brief review of relevant experiences from other countries.

3.1. The objectives of monetary policy

While the goals of economic policies, in general, comprise many variables such as economic growth, high employment, and the distribution of income, it is commonly agreed that price stability should be the main objective of a central bank's policies. The reason is simply that an appropriate monetary policy is a *necessary condition* for stable prices and that the central bank can have no systematic permanent influence on objectives involving real economic variables. The first part of this statement is relatively uncontroversial, but the second may require some further elaboration.

Only few economists believe that monetary policy can influence the rate of economic growth or the distribution of income in a systematic fashion. But an influential part of the recent literature on the choice of exchange-rate regime and monetary policy implicitly assumes that the central bank is capable of reducing the variability of

¹⁵ Note that this is close to the notion of "associate membership" proposed by Gros et. al. (1995).

variables such as employment and real income. Of course it is not difficult to construct theoretical models in which this is true. It is a bit more difficult to identify actual historical instances where a deliberate monetary policy has been able to stabilize employment and real income relative to a passive policy. Indeed, it is very hard empirically to identify *ex ante* operational strategies of monetary policy, which have produced systematically smaller fluctuations in real economic variables than other strategies.¹⁶

This line of argument suggests that price stability should perhaps be the *only* objective of monetary authorities. But central banks may be subject to pressures from government officials, political parties, business organizations, and so on, which operate with short-term employment goals—in which case their policies will appear to be driven in part by such considerations. This raises the important issue of designing institutions and implementation procedures so as best to guarantee the attainment of the main objective of price stability.

3.2. Implementation of monetary policy

Recent literature on the conduct of monetary policy has pointed out that when a central bank is subject to political pressures to stimulate employment and growth—even though this is impossible on a systematic basis—the end result is likely to be excessive inflation but no gain in employment. To prevent such an outcome, two types of solutions have been proposed:

- Tying the hands of the central bank by the adoption of policy rules.
- Making the central bank independent from the political process.

3.2.1. Policy rules

The old Friedmanian rule of putting monetary policy on an automatic pilot, by stipulating that the money supply should grow at a fixed rate, is an example of a proposal where discretion is removed from the central bank in an effort to prevent it from causing harm. Adopting a

¹⁶ Baxter and Stockman (1989) is an example of a study in which different policy regimes are compared with respect to the variability of real variables. Studying periods of fixed and floating exchange rates in a postwar sample of 49 countries the authors “find little evidence of systematic differences in the behavior of macroeconomic aggregates or international trade flows under alternative exchange-rate systems” (p.377).

fixed exchange rate, and, even more radically, converting the central bank into a currency board, is another example where a rule is introduced to deflect pressures on the central bank to pursue objectives other than price stability.¹⁷

Policy rules of this type may solve the problem of excess inflation but only as long as the political pressures, which were directed at the central bank, are not mobilized to revoke the rule. In other words, the longevity of policy rules is at the discretion of those that created them in the first place. This is why some rules may be more robust than others. A fixed exchange rate agreed on in the context of a multilateral exchange-rate system is more difficult to devalue than a fixed rate adopted unilaterally. Similarly, an entire currency-board arrangement is harder to dismantle than a simple commitment to a fixed parity.

The obvious drawback of rules is that they make it impossible to react rapidly to shocks in *legitimate* situations. Situations certainly arise when it is quite clear that a central bank could act in a stabilizing manner. A run on domestic banks would be one example where deviating from a strict monetary rule to increase liquidity in the domestic financial system would be appropriate. But being able to point to isolated instances, where the central bank would be able to do good, is not the same, however, as claiming that it would be able *systematically* to reduce instability. Difficulties in interpreting the current economic situation, *long and variable lags* in the transmission mechanism, and unexpected changes in the structure of the economy could lead to situations in which discretionary policy interventions produce inferior outcomes compared to a policy rule—even though the interventions were implemented with good intentions.

3.2.2. *Delegating monetary policy to an independent agency*

Protecting monetary policy from political pressures may be achieved by delegating its implementation to an independent central bank and investing it with the objective of price stability. An extreme version of this solution is of course to join the EMU and delegate monetary policy to an ECB over which domestic lobby groups have little influ-

¹⁷ A fixed exchange may of course be adopted for many reasons other than that evoked here.

ence.¹⁸ Short of going this far, the project to alter the law governing the *Riksbank* is designed to lessen political influence over monetary policy and increase the likelihood that price stability can be maintained on a sustained basis.¹⁹

Making the central bank independent protects it from political pressures to inflate, but it also raises the question of accountability. How can we ensure that the independence is not used to further the central bank's objectives rather than those of society as a whole? To solve this problem, it is necessary to specify clearly which objectives the independent central bank shall pursue and to provide the incentives for it to do so.²⁰

3.2.3. Operating procedures²¹

In the implementation of monetary policy, the central bank must develop an operating procedure that indicates how the instrument at its disposal (usually some interest rate or the monetary base) should be managed on a day-to-day basis. Where the overall strategy involves a rigid rule such as fixing the exchange rate rigidly *vis-à-vis* a low-inflation country, this operating procedure can be relatively simple: adjust the domestic interest rate in line with the foreign interest rate and intervene in the foreign exchange market to stabilize the exchange rate. There is no serious problem involving the availability of information necessary for implementing this policy or of knowing when and in which direction to move the policy instrument to achieve the target of fixing the exchange rate.²²

¹⁸ The law governing the ECB, which is built on the example of the *Bundesbank*, guarantees it independence not only from national governments but also from the EU bureaucracy in Brussels.

¹⁹ Cross-country empirical evidence indicates that the more independent a central bank is, the lower the inflation rates that it delivers. See, for example, Cuikerman (1992).

²⁰ The Reserve Bank of New Zealand is often cited as an example where the issues of independence and accountability have been successfully addressed. Waller (1995) contains a brief and particularly clear review of the recent academic literature on so-called performance contracts for central bankers.

²¹ Note that the descriptions in this section are meant to illustrate general principles only and not to constitute a practical operations manual.

²² This is not to say that other implementation problems might not be associated with a fixed exchange rate strategy. For instance, the credibility of this strategy, and hence the possibility of speculative attacks on the currency, depends not only on the monetary policy followed but also on fiscal policy. Furthermore, a fixed exchange rate does not guarantee a precise link in the short run between the domestic infla-

The situation is different when the central bank tries to attain price stability on its own. It then has to face up to the difficulties associated with, for example:

- Imperfect information about the state of the economy.
- The existence of lags in the effects of monetary policy on the ultimate target.
- Imperfect knowledge about the effects of variations in the policy instrument on the inflation rate.

To deal with these problems, two broad strategies have evolved: adoption of an intermediate target for monetary policy and more recently, so-called inflation targeting.

Expressing a monetary policy regarding an intermediate target may be justified on the following grounds:

The time lag between a change in the policy instrument and its effect on the intermediate target is significantly shorter than the lag between the instrument and the ultimate target. The link is typically also much stronger. By committing itself to reaching the intermediate target the central bank thus makes it easier for the private sector to determine whether or not it is following the announced policy objectives. With a higher probability of being detected, the central bank is less likely to deviate, and the inflation outcome will be better.

When an intermediate target has been used, in practice it has most often been expressed as some monetary aggregate. For instance, the Swiss National Bank uses the monetary base and the *Bundesbank* uses M3. The obvious reason for this choice is the belief that the evolution of the chosen monetary aggregate will determine the inflation outcome. To the extent that this belief is incorrect, the central bank may fail to attain the ultimate objective of its policy even though it may have hit the intermediate target. Perceived instability in the link between money growth and inflation is accordingly the main reason why several central banks have abandoned this strategy.

In the context of a highly open economy, it could be argued that the exchange rate would constitute a useful alternative to the money stock as an intermediate target. Of course it has been used as such in countries that have announced central parities and intervened in the market to keep the market rate between the corresponding bands. To

tion rate—the ultimate objective of the Central Bank’s policy—and the foreign inflation rate.

my knowledge no central bank, however, has used exchange rate as an intermediate target in the same way as the *Bundesbank* uses M3, namely, by announcing a target path but providing no guarantee that this path (\pm a band width) will be achieved with unlimited policy interventions. Yet there may well be a stronger relationship between the exchange rate and inflation than between money and inflation.

Inflation targeting can be characterized as a statement about the (only?) objective of the central bank. In some cases, the objective is explicitly shared by the government and the central bank. Inflation targeting does not by itself indicate how the instruments of monetary policy will be adjusted on a day-to-day basis to achieve the announced target. So the central bank enjoys a certain amount of discretion regarding implementation, which is performed according to a more or less well-articulated model of the determinants of inflation and the transmission mechanism from policy instruments to the price level. As already noted, the exchange rate often figures importantly in this “model”, but interest rates, the money supply, and other variables might also be looked at.

It is sometimes argued that inflation targeting is superior to a strategy based on an intermediate target because it focuses directly on the ultimate objective. As implied previously, this is misleading because inflation targeting does not do away with the necessity to analyze how the instrument of monetary policy should be set to achieve the ultimate objective. So inflation targeting is not immune to the problem of instability in relationships between currently observable data, policy instruments, and the inflation rate some periods later.

Given the *discretion* involved in the setting of policy instruments in an inflation-targeting regime, it does not appear to be a foregone conclusion that it will produce superior outcomes than other strategies. So a look at some actual country experiences may be useful.

3.3. Does the strategy matter? Lessons from four different regimes

A complete comparison of different monetary policy strategies is beyond the scope of this paper. Such a comparison would have to study not only the performance of each economy under the chosen strategy but also analyze how the economy might have evolved in the counterfactual situation, where another policy strategy had been chosen. The objective of this section is much more limited. It simply looks at the inflation performance in five countries, which have chosen quite dif-

ferent strategies to achieve the target of price stability. Table 1 lists them—with a brief description of their chosen strategy.

Table 1. Successful monetary policy strategies to control inflation

Country	Monetary policy strategy
Austria	Follows a unilateral <i>hard-currency</i> policy since the early 1980s, which consists of pegging the shilling closely to the German mark.
Canada	Floating exchange rate. Inflation targeting since 1991.
Netherlands	Fixes the HFL tightly to the German mark as a member of the European monetary system.
Switzerland	Independent floating. Uses the monetary base as an intermediate target.
New Zealand	Inflation targeting with floating exchange rate since 1990. The introduction of this policy was a part of a thorough reform of many other aspects of economic policy.

As can be seen, the sample includes:

- Switzerland—with a floating exchange rate that uses a monetary aggregate as an intermediate target.
- Canada and New Zealand, which pursue inflation targeting with a flexible exchange rate.
- Austria, which has unilaterally fixed its exchange rate.
- The Netherlands, which has fixed its exchange rate in the context of a multilateral system (the ERM).

Germany and the U.S. are included for comparison in Table 2.

The simple point that is made here is that control of inflation *can* be achieved with either of the strategies represented in this sample without obvious consequences regarding real economic activity. This does not mean that the choice of monetary policy does not matter. It will be argued, however, that it is not the institutional design of *only* the central bank and the objectives *it* is given that matter, but the objectives and institutions that govern economic policy in general. Tables 2 and 3 illustrate these conclusions. Table 2 shows that there are no striking differences between fixed rate countries (Austria and the Netherlands) and floaters (Switzerland and Canada) in the 1980-94 period as a whole, whether we look at the average inflation rate or its standard deviation. In the 1990-94 period, when two countries have an explicit inflation targeting strategy, it appears that these have managed to maintain a lower average inflation rate than the others. But they also had the most variable inflation rates. Keep in mind that the

sample is small in two dimensions, few countries per category and few years, so the importance of these differences should not be exaggerated.

Table 2. Inflation rates: averages and standard deviations

Country	1980-94		1990-94	
	Average	St. dev.	Average	St. dev.
Austria	3.70	1.66	3.44	0.41
Canada	5.27	3.44	2.78	2.30
Germany	3.09	1.81	3.45	0.61
Netherlands	2.86	2.18	2.83	0.32
Switzerland	3.48	1.80	3.89	1.99
United States	4.92	3.10	3.64	1.16
New Zealand			2.55	2.07

The growth rates of industrial production on which Table 3 is based tell a similar story. For the entire 1980-94 sample, it is not possible to find systematic differences between the countries. For the small sample in the 1990s, the only noteworthy pattern is that the inflation targeting countries had the two highest standard deviations of the growth rates. Again, the small sample should caution against drawing strong conclusions from these numbers. The most prudent seems to be that the monetary strategy does not lead to noticeably different outcomes for inflation and industrial production.²³

Table 3. Growth of industrial production: averages and standard deviations

Country	1980-94		1990-94	
	Average	St. dev.	Average	St. dev.
Austria	2.14	3.07	1.92	3.77
Canada	2.05	5.55	0.96	5.05
Germany	1.05	3.55	0.56	4.98
Netherlands	1.44	2.62	1.46	1.88
Switzerland	1.95	3.31	2.00	3.28
United States	2.44	4.12	1.72	2.79
New Zealand	1.49	5.17	1.52	5.57

Should the arguments and “evidence” just presented be interpreted to mean that a country can adopt any of the monetary strategies rep-

²³ This is consistent with the findings of Baxter and Stockman (1989) already referred to.

resented in this sample and automatically achieve the same result? Certainly not.

The countries that have been referred to are generally considered as success cases (at least during the time periods in Table 1). Why is that? More detailed descriptions of the policy strategies adopted by these countries give some hints.²⁴ They tend to show that a monetary policy consistent with price stability is not the only ingredient in their macroeconomic policy programs.

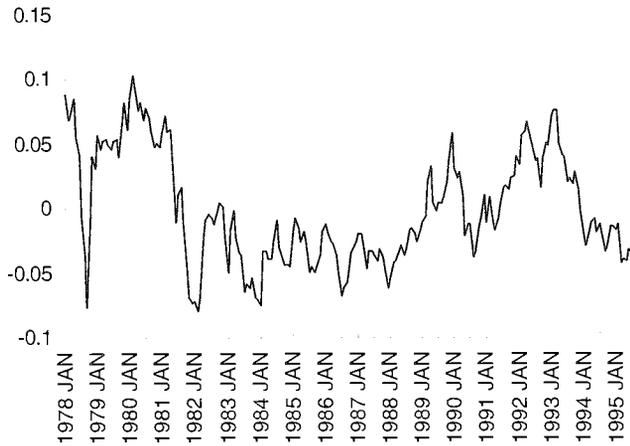
Fiscal positions consistent with sound and sustainable public finances have also been present. Less tangibly perhaps, but equally importantly, they also give the impression that the success of the anti-inflationary policy owes a lot to a general consensus in the population, in general, and among policy makers, in particular, that inflation is costly, does not generate any sustained benefits in terms of economic growth, and can be kept in check only by a restrictive monetary policy. A broad consensus of this kind is necessary to sustain a policy strategy to achieve price stability.

The nature of this strategy—whether it involves inflation targeting with or without an explicit intermediate target for monetary policy or a unilateral or multilateral fixed exchange-rate policy—matters less *provided* that the all elements of macroeconomic policy is consistent with it.

Before leaving the experience of our sample of countries and turning to some implications for Sweden, note that the exchange rates of the floaters have displayed fluctuations of the order of \pm ten-fifteen percent (see Figure 1) relative to the U.S. dollar (for Canada and New Zealand) and the German mark (for Switzerland) even though the corresponding average inflation differentials have been quite small. This suggests that inflation targeting as a transition arrangement for entry into the EMU would be compatible with announcing a parity for the exchange rate only if the band width around that parity remains what it currently is within the ERM.

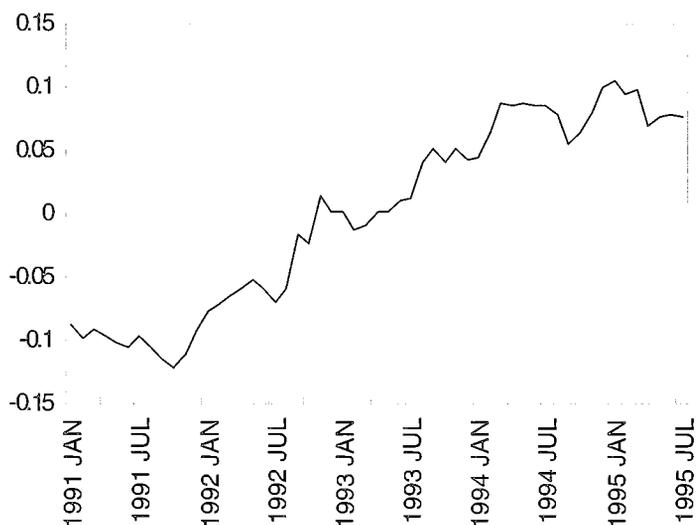
²⁴ For example, see the contributions of Freedman for Canada and Fischer for New Zealand in Leiderman and Svensson (1995), Rich (1995) for Switzerland, and Hochreiter and Winckler (1995) for Austria.

Figure 1. Exchange rates of floaters



The floaters' exchange rates displayed fluctuations of ± 10 -15 percent relative to the U.S. dollar (for Canada and New Zealand) and the German mark (for Switzerland) even though the corresponding average inflation differentials were quite small.



Figure 1. Exchange rates of floaters, continued ...

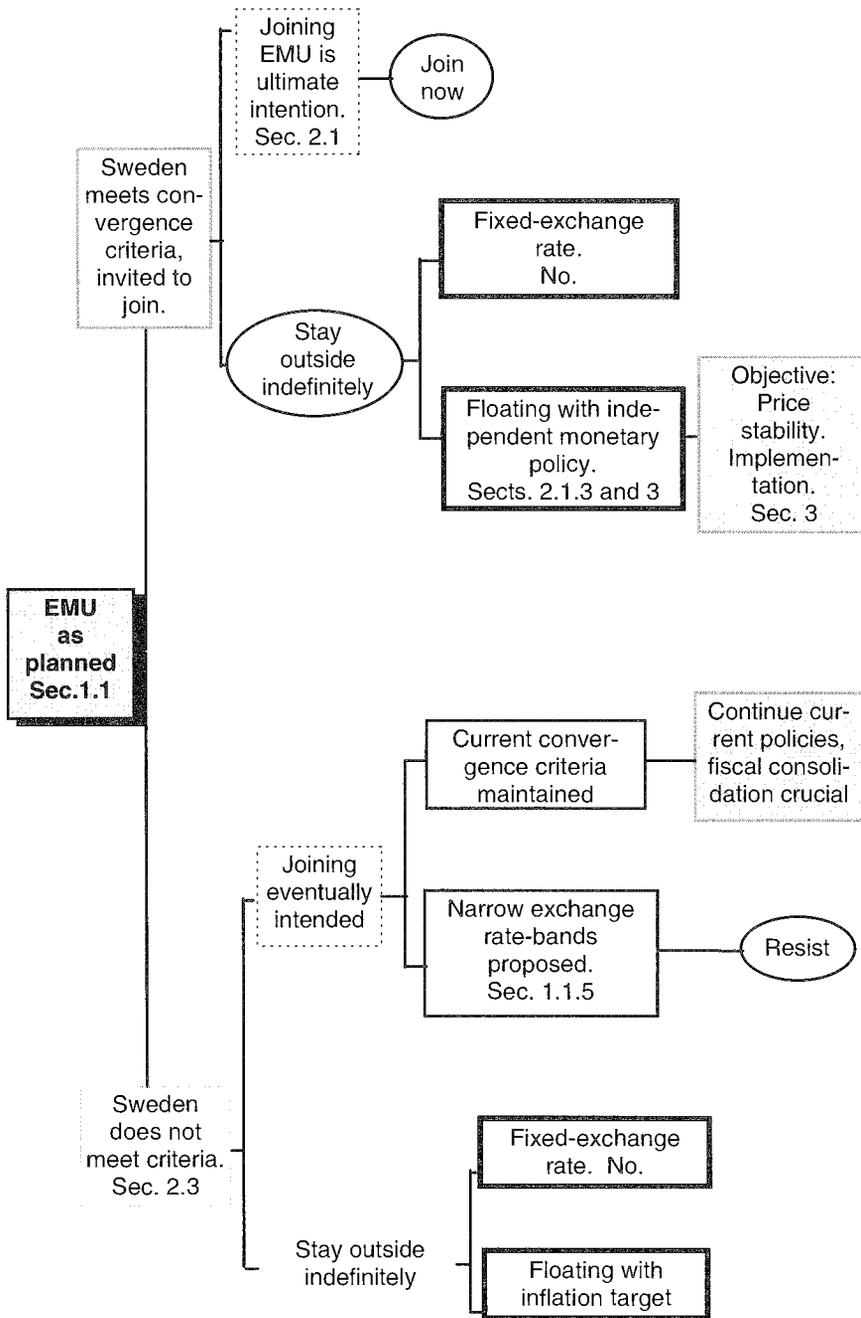
4. Summary and implications for Sweden

Now it is time to summarize the implications of the previous analysis for the decisions on EMU that Sweden must take. This summary is done with the help of Figure 2, in which the options available are stated in terms of a decision tree. The figure assumes that Stage Three of the EMU will start as planned in 1999 and function as described in Section 1.1. Sweden must then decide whether to stay outside the monetary union or to join (either immediately or after some transition period).²⁵

Suppose first that Sweden manages to meet the convergence criteria and is invited to join the monetary union. If joining the union is the eventual goal, then the arguments in Section 2.1. suggest that the best strategy is to accept the invitation and to join immediately in 1999.

²⁵ Here, it is assumed that the Maastricht Treaty permits these options.

Figure 2. A decision tree



Such a decision would have the advantage of clarifying the *rules of the game* facing participants in labor and goods markets. The necessary structural adjustments would be forced on the government and private sector. Postponing entry into the union until these structural adjustments are made, without external constraints, would introduce time-inconsistency and credibility problems.

If Sweden decides to stay outside, it must define an alternative monetary policy strategy. I have argued that fixing the value of the crown to a currency other than the euro makes little sense in this situation. Instead, the *Riksbank* should be charged, with maintaining a low and stable inflation rate as the over-riding objective of its policy. Section 3 discusses the reason for this emphasis on inflation control and other issues related to institutional design and implementation. It argues that independence of the *Riksbank* from political pressures is useful, but not a sufficient condition for success in establishing price stability. The overall stance of macroeconomic policies must be considered because it would influence the credibility of a monetary policy aimed at controlling inflation. For example, if large fiscal deficits generated high real interest rates, a strong real appreciation of the currency, or a threat of a government debt crisis, it could be difficult even for a formally independent central bank to focus on only price stability.

If Sweden does not meet the convergence criteria for joining the EMU, the options available obviously exclude an immediate participation in the monetary union. In addition, Section 2.3 argues that participation in transition arrangements may also become more difficult, especially if the size of permitted exchange-rate variations is reduced from its current value of ± 15 percent. Such a system would be costly to adhere to and could become the subject of speculative attacks. So Sweden and other countries, which are not admitted into the EMU in the first round, should argue vigorously against narrower bands.²⁶

If the current convergence criteria are maintained, it should be possible for the *Riksbank* to continue its present monetary policy while at the same time announcing a central parity to comply with entry requirements. An important condition for this strategy toward

²⁶ As noted above, the ERM II, which is likely to be adopted, will incorporate wide bands.

future membership to succeed is that the government's fiscal position is stabilized.

If Sweden does not intend to join the EMU at all, the fact that convergence criteria have not been met is not of great significance apart from the fact that some of these criteria indicate macro-economic imbalances which are not desirable in and of themselves. But the appropriate strategy for monetary and fiscal policy outside a monetary union would remain the same whether or not the criteria have been met. Of course, it will become more difficult to attain the goal of price stability if the budget position of the government is unhealthy.

If Stage Three of the EMU were postponed, Sweden would face a situation similar to that previously discussed in which Sweden failed to meet the convergence criteria. As discussed in Section 1.2, the implications for the conduct of economic policy would depend importantly on whether or not the current convergence criteria would be maintained. For the reasons given above, Sweden should argue against tightening these criteria, especially the exchange-rate component, if it intends to ask for membership. If Sweden decides against membership, a postponement of the EMU would not require change in policy strategy.

References

- Baxter, M. and A. C. Stockman (1989), Business Cycles and the Exchange-Rate Regime: Some International Evidence, *Journal of Monetary Economics* 23, 377-400.
- Cukierman, A. (1992), *Central Bank Strategy, Credibility and Independence - Theory and Evidence* (The MIT Press, Cambridge).
- Eichengreen, B. and C. Wyplosz (1993), The Unstable EMS, *Brookings Papers on Economic Activity* 1, 51-143.
- Gros, D., et. al. (1995), *Towards an Economic and Monetary Union. Problems and Prospects*, CEPS Working Document No. 95, Brussels.
- Hochreiter, E. and G. Winckler (1995), The Advantages of Tying Austria's Hands: The Success of the Hard Currency Strategy, *European Journal of Political Economy* 11, 83-111.
- Jonung, L. (1996) Sverige utanför och innanför EMU, in: N. Lundgren, ed., *Vad vill Sverige med EU?*, Konjunkturrådets rapport 1996 (SNS Förlag, Stockholm).
- Leiderman, L. and L. E. O. Svensson (1995), eds., *Inflation Targets* (CEPR, London).

- Persson, T. and G. Tabellini (1996), Inflation Targets as a Coordinating Mechanism for the 'Ins' and the 'Outs', paper presented at the Workshop on "Monetary Co-Existence in Europe", Rome, 26 February.
- Rich, G. (1995), Monetary Targets as a Policy Rule: Lessons from the Swiss Experience, paper presented at the conference on "Rules versus Discretion in Monetary Policy", Study Center of Gerzensee, Gerzensee, March 15-17.
- Svensson, L. E. O. (1994), Fixed Exchange Rates as a Means to Price Stability: What Have we Learned?, *European Economic Review* 38, 447-68.
- Thygesen, N. (1996), The Prospects for EMU by 1999 - and Reflections on Arrangements for Outsiders, paper presented at the Workshop on "Monetary Co-Existence in Europe", Rome, 26 February.
- von Hagen, J. (1995), Inflation and Monetary Targeting in Germany, in: L. Leiderman and L. E. O. Svensson, eds., *Inflation Targets* (CEPR, London) 107-21.
- Waller, C. J. (1995), Performance Contracts for Central Bankers, *Federal Reserve Bank of St. Louis Review* 77, 3-14.
- Wyplosz, C. (1996), An EMS for Both 'Ins' and 'Outs': the Contractual and Conditional Approach, paper presented at the Workshop on "Monetary Co-Existence in Europe", Rome, 26 February.