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Monetary Policy in the Shadow of a Monetary Union[1]

"Inauguration of the monetary policy committee" at the Bank of Ghana on 9 September 2002.

1. Introduction

There is presently little disagreement among economists that the ultimate goal of monetary policy should be price stability. Indeed, in the statute of the recently established European Central Bank price stability is clearly stated as the primary objective of the bank, and it is made clear that support of the general economic policies in the Community is only a secondary objective.

In pursuing the final target of price stability, different countries have chosen different intermediate targets to guide their monetary policy. During the last decade several countries have switched to a monetary regime based on inflation targeting.[2,3] Since monetary policy is only effective with some lag, and since excessive output losses are to be avoided, inflation-targeting central banks seek to control inflation over the medium term. Expected future inflation at a given horizon thus serves as the intermediate target for an inflation-targeting central bank.

This article will, however, focus on another intermediate target: the exchange rate.[4] Before the creation of the European Monetary Union, most of the EU member states participated in the European Monetary System – a fixed-exchange-rate system based on a grid of bilateral central parities and intervention bands. Currently, three EU member states have not adopted the euro: while the UK and Sweden have inflation-targeting regimes and a floating exchange rate vis-à-vis the euro, Denmark follows a fixed-exchange-rate

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1 This paper builds heavily on Jensen (2001).

2 Mishkin and Schmidt-Hebbel (2001) list 19 current and former inflation-targeting countries.

3 See, for instance, Bernanke and Mishkin (1997), Svensson (1997) and Bernanke et al. (1999).

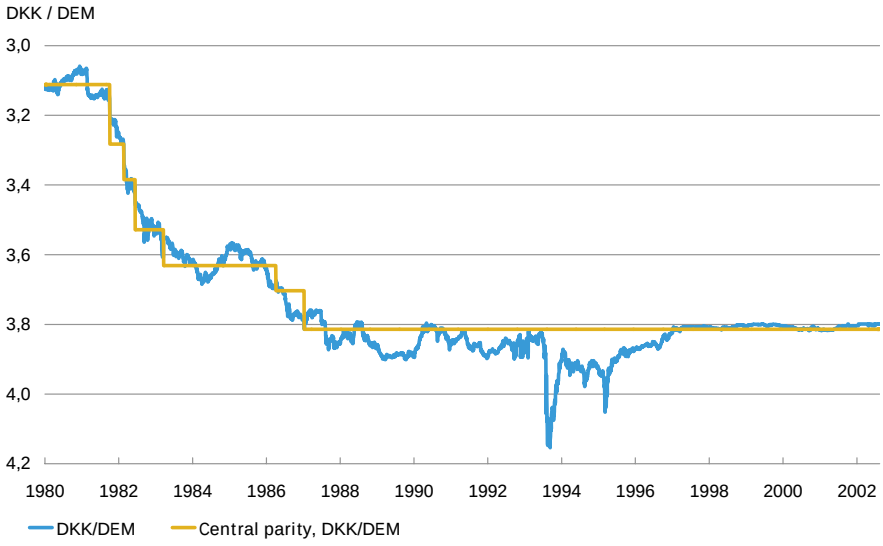
4 Some central banks, most notably the Bundesbank and the Swiss National Bank, have pursued monetary targets in the past. However, Bernanke et al. (1999) argue that they were implicitly targeting inflation.

policy vis-à-vis the euro. The intermediate target for Danish monetary policy is thus the krone/euro exchange rate.

The new European fixed-exchange-rate system, ERM II, came into operation on 1 January 1999 and Denmark became a member immediately, with a narrow fluctuation band of +/- 2.25 per cent around a central parity of 746.038 kroner per 100 euro. The favourable convergence position of the Danish economy made it possible to conclude an agreement on a narrow band. The standard fluctuation band in ERM II is +/- 15 per cent.

Membership of ERM II was not a major change of the Danish monetary regime. As a matter of fact, Denmark has a very long tradition for a fixed-exchange-rate policy. The central parity vis-à-vis the euro corresponds exactly to the former central rate vis-à-vis the D-mark, which was unchanged from early 1987, cf. Chart 1. Furthermore, by 1982, exchange-rate realignments had ceased to be a self-initiated Danish policy instrument.

THE KRONE VIS-À-VIS THE GERMAN MARK AND THE EURO — Chart 1



Note: From 1 January 1999 a conversion has been made to depict DEM instead of EUR.

The firm commitment to a fixed-exchange-rate policy originates from very poor performance of macroeconomic policy and, consequently, poor performance of the Danish economy in the 1970s. Against the background of high inflation, excessive budget deficits, permanent deficits on the current account of the balance of payments, frequent devaluations of the krone and high nominal interest rates, the Danish authorities in the early 1980s made a successful U-turn to a stability-oriented macroeconomic regime. The fixed-exchange-rate policy was, and still is, an important element in the macroeconomic framework in Denmark. See Christensen and Topp (1997) for a more detailed review of the change in Danish economic policy in the aforementioned period.

While participation in ERM I and ERM II have been beneficial to the Danish economy in its own right, these exchange-rate systems and the successful introduction of the euro should be viewed in a much broader context than from a purely monetary policy perspective. EU member states co-operate on a large range of political and economic issues and have set up a common legal and institutional framework, of which the ECB is only one example. This probably contributed to a smooth transition to a common monetary policy.

The paper is organised as follows. The first part covers the structural macroeconomic facts of importance for the fixed-exchange-rate policy. The second part deals with the technical and tactical aspects of monetary-policy implementation in ERM II. The paper concludes that a fixed nominal exchange rate vis-à-vis the euro is beneficial for a small open economy such as Denmark.

2. The Danish fixed-exchange-rate Policy

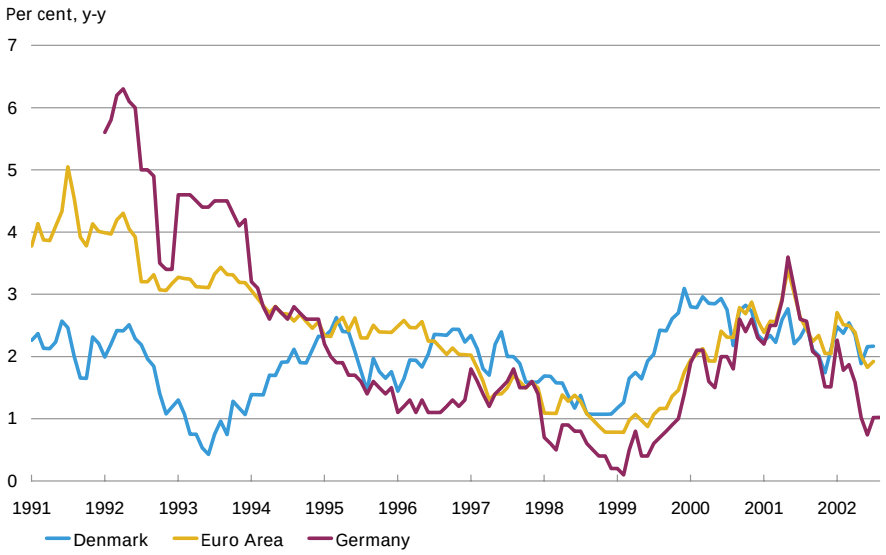
It is important to emphasise that the Danish exchange-rate policy is a *fixed*-exchange-rate policy, and not a fixed, but adjustable, exchange rate. Taken literally, this can only be true with euro area membership. However, in a Danish policy context it means that all macroeconomic policies are conducted with a view to ensuring a fixed exchange rate. There is no contingency plan if things go wrong.

The two key conditions for success are a strong commitment from the authorities to abstain from creating "home made" shocks (which according to the Danish experience are far more important than exogenous external shocks) and an unconditional willingness to subordinate monetary policy to the exchange-rate strategy.

Price stability

A first test of the benefits of a monetary regime is to see if it delivers on the final goal. For a central bank the key issue is price stability, and the Danish monetary regime passes the test. Inflation measured as the percentage annual increase in the harmonised consumer price index (HICP) has been stable at around 2 per cent in Denmark since the early 1990s, cf. Chart 2. The persistence of low inflation has furthermore been conducive to low inflationary expectations. In the period since the announcement of the fixed-exchange-rate policy low and stable inflation has been achieved without loss of income relative to our major trading partners, Germany, Sweden and the UK, although it should be recalled that the transition to a low-inflation economy is not an isolated Danish phenomenon. Most OECD countries have achieved the same in the last decade, independently of their monetary-policy regimes. Consequently, Danish inflation performance cannot be taken as a general proof of the superiority of a fixed-exchange-rate regime.

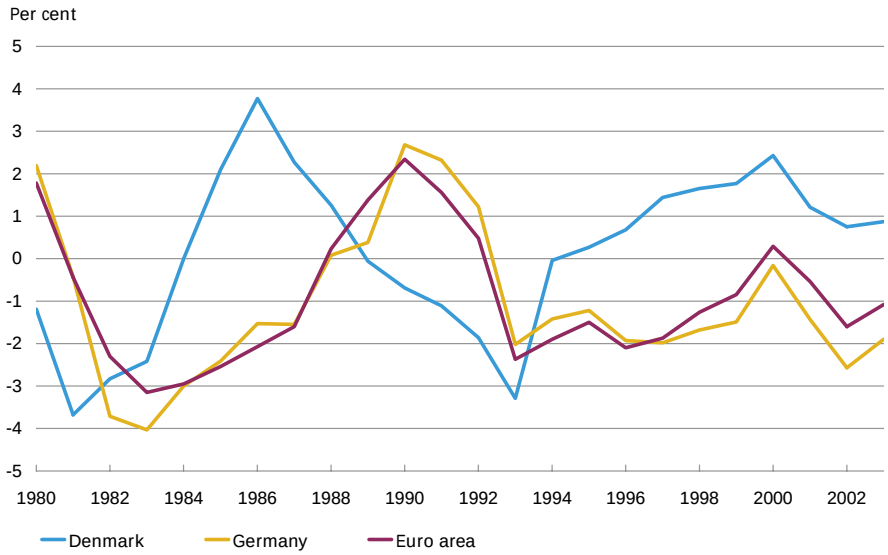
INCREASE IN HARMONISED INDEX OF CONSUMER PRICES IN DENMARK, GERMANY AND THE EURO AREA — Chart 2



Monetary policy and the business cycle

A fixed-exchange-rate policy implies that the stance of monetary policy is from time to time out of line with domestic short-term cyclical needs, and is potentially a destabilising factor. When key monetary-policy interest rates are closely linked to German interest rates, and since 1999 euro-area interest rates, there is no room for independent domestic stabilisation by means of monetary policy. This problem appears to be particularly severe in Denmark, where the business cycle – at least according to visual inspection – seems to be negatively correlated with the cyclical conditions in Germany and the euro area, cf. Chart 3. However, it is also possible to draw a completely opposite conclusion from the deviation in the cyclical patterns: cyclical divergence is immaterial to the success of a fixed-exchange-rate policy.

OUTPUT GAP IN DENMARK, GERMANY AND THE EURO AREA Chart 3



Note: 2002 and 2003 are projections.
Source: OECD Economic Outlook.

The monetary-policy transmission mechanism is of crucial importance in the choice between business-cycle and exchange-rate stabilisation. The direct effect from changes in short-term interest rates to domestic demand is comparatively small in Denmark. The terms for mortgage financing, which is the most important transmission channel to the household sector, are predominantly based on fixed 20-year or 30-year mortgage bond yields. Variable mortgage lending at 1-5 year interest rates has, however, gained in importance in recent years, but is still at a relatively low level.

The basic textbook model includes only one policy instrument for short-term stabilisation – monetary policy. This is a standard formulation in the literature and also in line with practice in most industrialised countries. Discretionary fiscal policy came into disrespect after the abuse of the instrument in the 1960s and 1970s, which led to stagflation, large budget deficits and high public debt in many countries. Denmark has also suffered from this experience, but discretionary fiscal policy is still used to stabilise the economy.

It is important to underline that the frequency of discretionary fiscal measures is low and far below the frequency of monetary-policy changes in countries with other monetary regimes. The government does not meet every two weeks to consider an adjustment to e.g. the VAT rate following the latest business-cycle information. During the past decade discretionary fiscal stabilisation measures outside the normal central-government budgetary calendar have been introduced on three occasions: temporary expansive measures in 1993, and contractive measures in 1997 and 1998. Furthermore, the appropriate macroeconomic impulse from the government budget to output is also taken into consideration in the annual budget negotiations. In

years when fiscal policy has not been used for stabilisation purposes the fiscal impulse, i.e. the contemporaneous contribution to GDP-growth from fiscal policy in a given year, has been close to zero. As is the case in most countries it is also politically easier to increase public expenditure and reduce taxes than the opposite in Denmark. However, it is not our assessment that the reliance on a fixed exchange rate and occasional discretionary fiscal policy measures in itself has exacerbated this inherent problem.

Quite the contrary, the fixed-exchange-rate policy has been instrumental in the significant improvement in Danish economic policy that has taken place in the last 10-15 years. The Danish government, supported by a large majority in the Danish parliament, is committed to use fiscal policy if inflationary developments are out of line with the exchange-rate policy. It has been publicly announced that fiscal policy will be adjusted if inflation deviates from the ECB's definition of price stability (0-2 pct. increase in the harmonised index of consumer prices - HICP).

Fiscal measures are taken with due regard for developments in government debt as well as in the current account. Indeed, except for 1998 Denmark has had a surplus on the current account of the balance of payments since 1990, while there has been a surplus on the government budget since 1997. Furthermore and equally important, the fixed-exchange-rate policy has brought structural reforms of the tax and benefit systems and the labour market to the policy forefront as the necessary tools to ensure low unemployment and growth in real income.

Asymmetric shocks, home-made shocks and exchange-rate policy in Denmark

A floating exchange rate is often considered useful in order to insulate an economy from certain shocks in a world with nominal wage rigidity and/or limited labour mobility. A fixed-exchange-rate policy can lead to excessive and protracted unemployment in such a world, and adjustment to asymmetric shocks is – at least in theory – an important argument against a fixed-exchange-rate policy. However, the importance of this argument requires answers to the following two questions: 1) What causes large positive and large negative output gaps? 2) Is a floating exchange rate an efficient shock absorber?

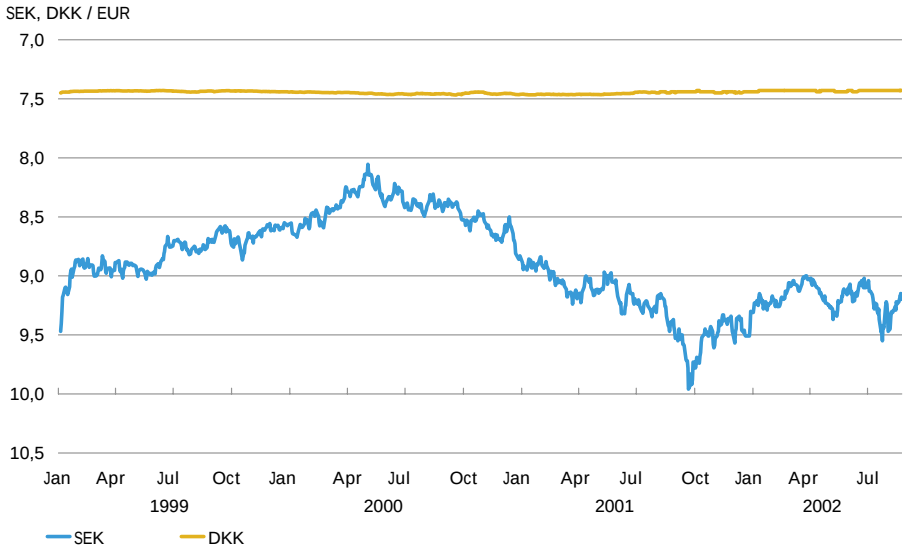
The Danish economy was in severe slump in 1981, reached a peak in 1986, went back into a period of slow growth, bottoming out in 1993, and has grown strongly since and exhausted the negative output gap, cf. Chart 3. The business cycle was also out of line with Germany as well as the entire euro area. The business cycle in itself and the deviation to the German business cycle cannot be explained by exogenous external factors. Firstly, the demand for Danish exports did not deviate from the trend to an extent that can explain the cyclical swings in the period under observation. Secondly,

the terms of trade moved more or less in line with the terms of trade for other EU member states, ruling out external price shocks as an explanation. Hence, the roots of Danish output fluctuations are to be found among domestic factors. Accordingly, the analysis does not carry over to an economy subject to large external shocks.

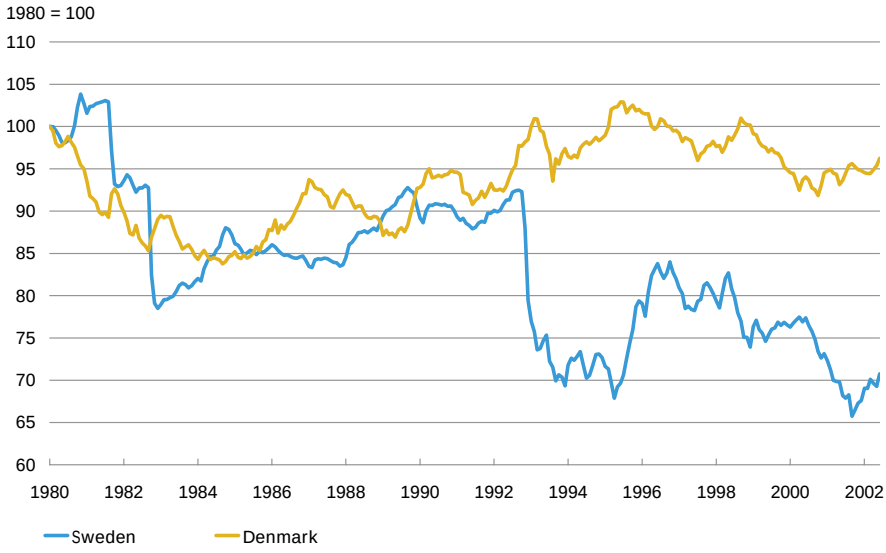
The trough in 1981 had its origin in the very poor macroeconomic policies of the 1970s that can be summarised as traditional Keynesian demand stimulus to the oil-price shocks. The sharp fall in nominal interest rates following the announcement of the fixed-exchange-rate policy in 1982, in combination with other austerity measures, was not accompanied by a corresponding immediate reduction in inflation expectations. This led to a decline in expected ex-ante after-tax real interest rates that triggered a boom in house prices and private consumption, leading to the peak in 1986. The until then highly preferential tax treatment of interest-rate expenditures was reduced as from 1987. A decline in actual inflation in combination with the tax changes led to a sharp increase in ex-post after-tax real interest rates that triggered the proceeding depression in the housing market and a strong increase in the private savings ratio. The Danish experience over the last twenty years is thus that “home made” domestic shocks stemming from economic policy are more important than exogenous external shocks.

The choice of exchange-rate regime is not a choice between a fixed nominal exchange rate and a floating exchange rate that evolves according to purchasing power parity. A floating exchange rate often moves relatively far away from any reasonable estimate of purchasing power parity and thus acts as a shock creator rather than a shock absorber, cf. Buiter (2000). The strength of the dollar in the mid-1980s and the present weakness of the euro are well-known examples. The importance of such unwarranted disturbances is most severe for small open economies such as Denmark. The exchange-rate movements depicted in Chart 4 and Chart 5 indicate that Sweden – a small open economy with a floating exchange rate and low inflation – receives far more noise from exchange-rate fluctuations than Denmark. The fixed-exchange-rate policy cannot ensure a stable nominal effective exchange rate or a stable real effective exchange rate. However, the weight to the euro in the effective Danish exchange rate is slightly below 60 per cent. Thereby, the fixed-exchange-rate policy yields a nominal hedge in a very important market for the Danish economy. This planning stability is beneficial to the business climate. A fixed-exchange-rate policy based on the nominal effective exchange rate would not offer such a hedge against any specific currency.

SWEDISH KRONA AND DANISH KRONE VIS-A-VIS THE EURO Chart 4



REAL EFFECTIVE EXCHANGE RATE IN SWEDEN AND DENMARK Chart 5

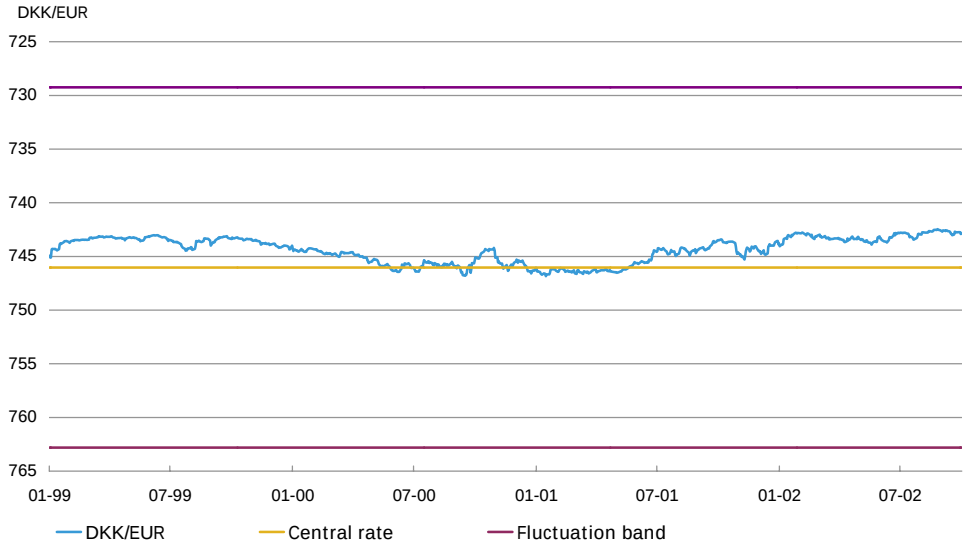


Note: The real effective krone rate is based on consumer prices. Most recent observation is June 2002.

3. Monetary policy implementation and ERM II

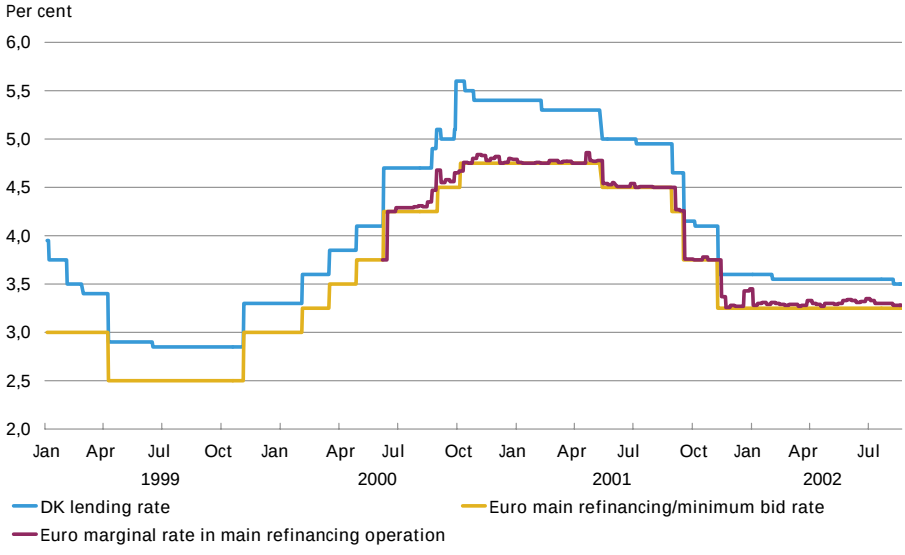
The krone has remained close to the central parity against the euro since ERM II and the third stage of the European Monetary Union came into operation on 1 January 1999, cf. Chart 6.

ERM II BAND AND THE DANISH KRONE VIS-À-VIS THE EURO Chart 6



In order to achieve exchange-rate stability, the interest rates of Danmarks Nationalbank are adjusted in step with those of the ECB, with due consideration of conditions in the foreign-exchange market, cf. Chart 7. A tendency for the krone to weaken will be met by a widening of the interest-rate differential, and vice versa. Interventions in the foreign-exchange market are used to dampen fluctuations in the krone rate.

KEY MONETARY POLICY INTEREST RATES IN DENMARK AND THE EURO AREA Chart 7



This implies that the decision-making body should be ready to take interest-rate decisions at more or less any time, and therefore the structure of the decision-making process is quite different from that of a central bank pursuing an inflation target. Moreover, the possibility of more or less real-time evaluation of the success of Danmarks Nationalbank's monetary policy, i.e. whether the exchange rate stays within the band, implies that there is no

ambiguity with regard to fulfilment of the target. Accordingly the word transparency implies something different under a fixed-exchange-rate system compared to an inflation-targeting regime.

It is evident from Chart 6 that the exchange rate against the euro is far more stable than allowed by the fluctuation band of +/-2.25 per cent against the euro. In the years preceding the breakdown of ERM I in 1992-93 many exchange rates, including the krone, fluctuated widely within the narrow band, while primarily the Dutch guilder, the Belgian franc and the Austrian schilling generally fluctuated little within the bands. Obligatory intervention at the margin was not a rare event, and realignments occurred frequently in some periods. Part of the explanation for these differences in exchange-rate dynamics under the two arrangements may be a higher risk of contagion effects from other countries under ERM I due to the parity grid in place. If, for example, macroeconomic developments in one member state seemed to justify a realignment of its central parity in the ERM I, this tended to affect financial market prices in other member states as well, reflecting expectations of further realignments. In some cases this happened even though macroeconomic fundamentals did not seem to justify realignments in other countries, see for example Favero and Giavazzi for an analysis of contagion under ERM I. From a formal viewpoint there was no centre in ERM I, while ERM II consists of bilateral agreements between the ECB and each participating central bank. Problems in one country are therefore less likely to lead to problems for other countries. Of course, at the moment any contagion within ERM II can be ruled out as Denmark is currently the only member!

The widening of the band to +/-15 per cent in 1993 was not considered meaningful as a basis for the fixed-exchange-rate policy of Denmark. Consequently, Danmarks Nationalbank embarked on a unilateral policy to stabilise the krone with the central parity as a point of reference – albeit from time to time a distant point of reference. This policy brought the krone to a stable position close to the central parity in early 1997. Since then, Danmarks Nationalbank's key interest rates have shadowed the interest rates of the Bundesbank, and as of January 1999 the interest rates of ECB. In addition, Danish interest rates have been changed unilaterally in periods with upward or downward pressure on the krone and in periods of unrest in foreign-exchange markets. The most notable incidents in recent years were in the autumn of 1998 in connection with the global financial turmoil and in the autumn of 2000 immediately after the referendum that rejected euro area membership.

It is crucial for the exchange-rate policy that Danmarks Nationalbank follows ECB rates automatically without hesitation, irrespective of domestic considerations. Furthermore, the short-term interest rate differential has to be increased promptly if the krone has a pronounced tendency to weaken beyond the day-to-day fluctuations. Intervention in the foreign-exchange

market cannot stand alone; but must be accompanied by increases in interest rates. It is also an integral element of the foreign-exchange defence that the interest-rate differential is increased quickly and substantially, but only reduced gradually as a delayed response to currency inflows. This policy ensures that speculation against the krone is costly and unprofitable.

The predominant role of long-term fixed-rate mortgages in Denmark reduces the tensions associated with raising interest rates in order to defend the exchange rate. Furthermore, the monetary policy instruments used by Danmarks Nationalbank allow for a differentiation of monetary-policy signals that can ease the burden on "the man in the street" even further – at least in the short run. Commercial banks have unlimited access to borrowing at Danmarks Nationalbank in the weekly operations for as long as they have sufficient collateral. Danmarks Nationalbank's lending rate is thus the decisive signal for money-market interest rates.For short periods it may be raised more aggressively than the discount rate, which is the decisive rate for the general borrowing and deposit conditions at commercial banks. See Christensen and Topp (1997) for a detailed account of the Danish monetary-policy instruments and various liquidity measures that can be implemented in the event of serious foreign-exchange unrest.

The fixed-exchange-rate policy and Danmarks Nationalbank's unconditional willingness to support the exchange rate are firmly embedded among participants in the foreign-exchange market as well as among Danish exporters and importers. The large commercial banks' speculative behaviour in the foreign-exchange market acts as a stabiliser. If the krone lies on the weak side of the parity, the commercial banks will position themselves in support of the krone, and they will furthermore advise their customers to purchase krone e.g. sell export proceeds in foreign currency. The reverse is the case if the krone is on the strong side of the central parity. All this takes place within a narrow range around the central parity.

4. Conclusion

It is clear from the preceding sections that ERM II is not very visible in the day-to-day management of the Danish fixed-exchange-rate policy. Danmarks Nationalbank seeks to stabilise the krone within a much narrower range than the +/- 2.25 per cent fluctuation band. The ERM II band serves as a safety net. It provides international support in a worst-case scenario. It is probably more important that by entering the ERM II agreement in 1998 the Danish government strengthened its commitment to pursue an economic policy in accordance with the requirements set by the fixed-exchange-rate policy.

A stability oriented macroeconomic framework conducive to growth and employment can undoubtedly be achieved in many different ways. In the case of Denmark the fixed-exchange-rate policy and ERM (I and II) mem-

bership have been instrumental to the establishment of such a framework. There are many country-specific circumstances that make life either easy or difficult under a fixed-exchange-rate regime. However, there are two fairly general lessons to be learnt. Firstly, monetary policy must be unconditionally subordinated to the exchange rate. Secondly, a fixed-exchange-rate policy is neither an approach by which lower interest rates can be achieved the easy way, nor a way to postpone structural domestic adjustments with the support of the anchor country. The primary responsibility for the establishment of a stability oriented macroeconomic framework remains with the individual country itself.

5. References

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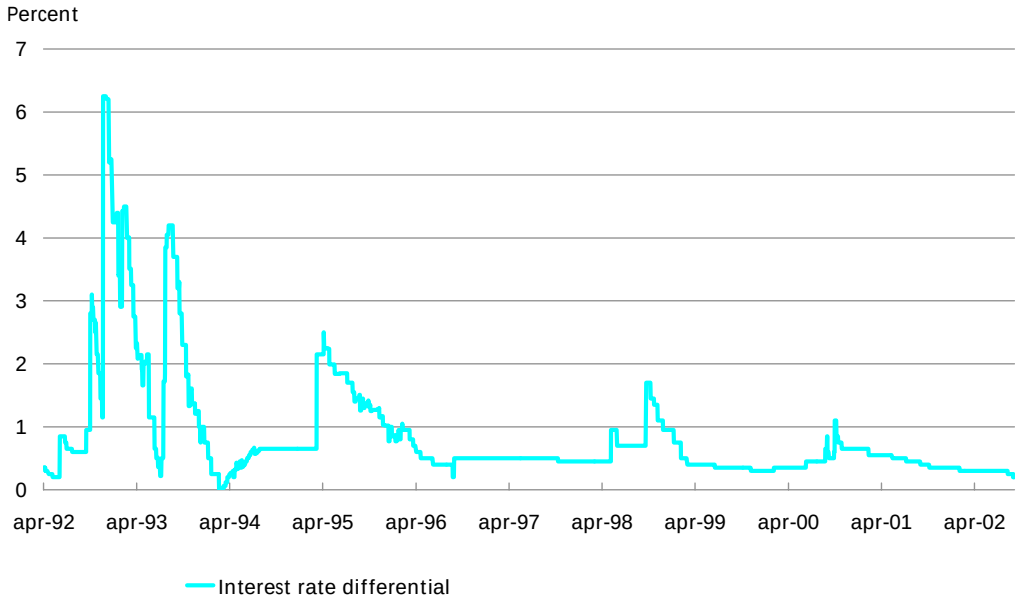
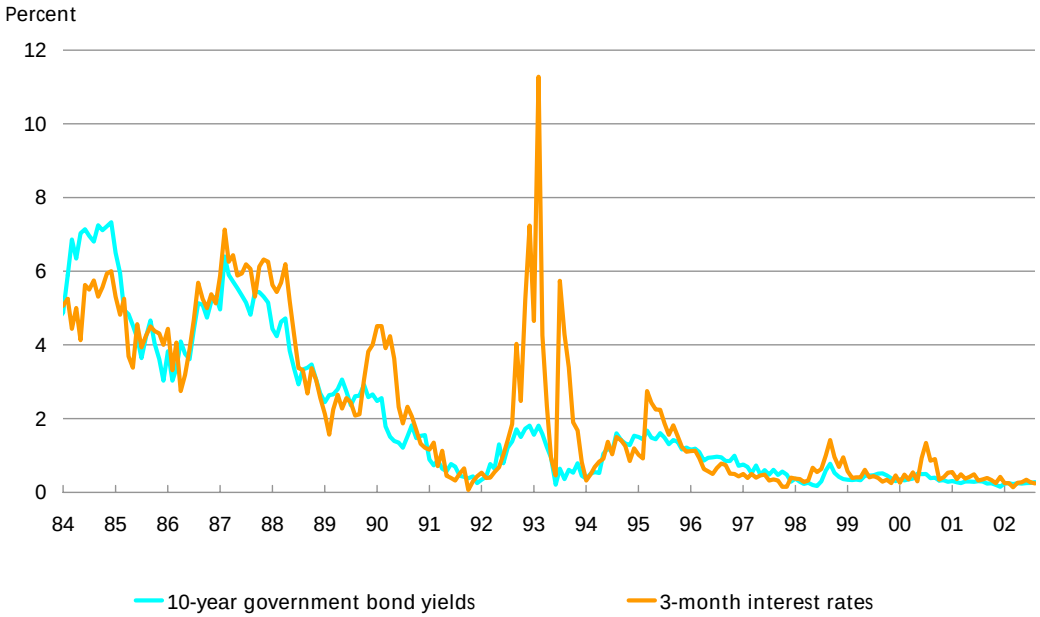
Appendix

Chart 1A: Differential between main refinancing interest rates in Denmark and the euro area



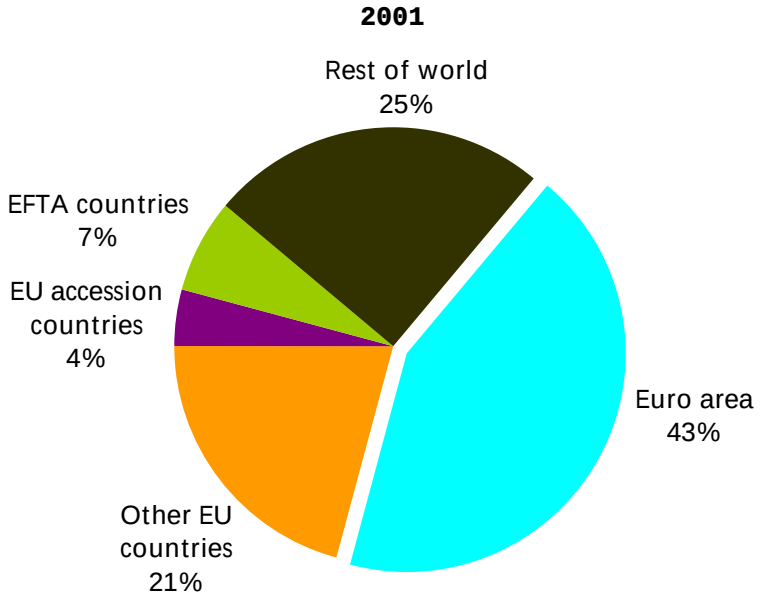
Note: Bundesbank main refinancing interest rate before 1999. Minimum bid rate from June 2000.
Source: Bundesbank, ECB and Danmarks Nationalbank.

Chart 2A: Interest-rate differentials between Denmark and Germany



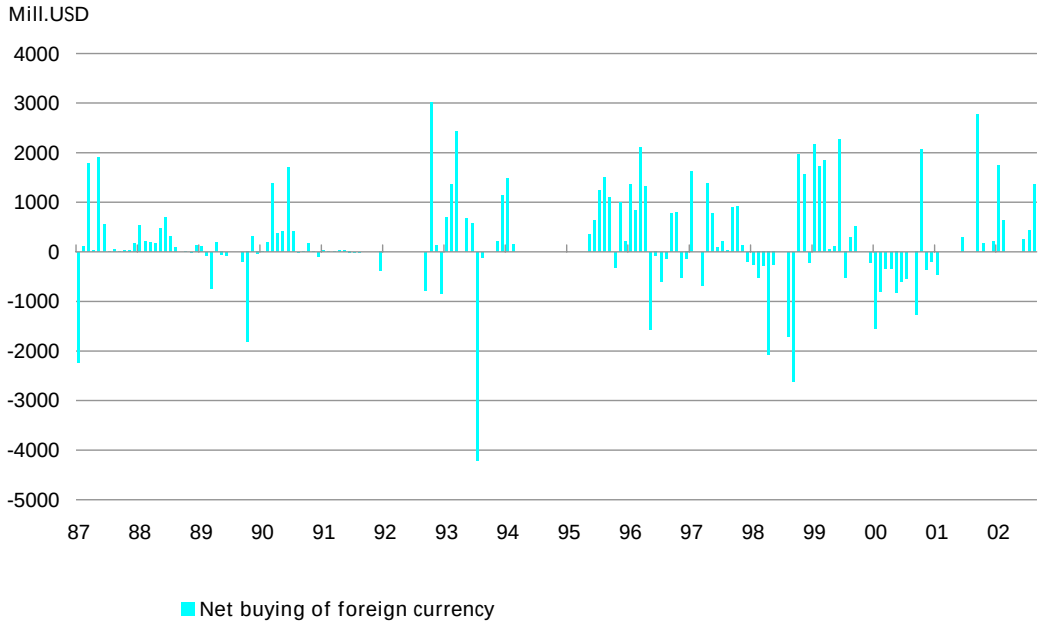
Source: EcoWin.

Chart 3A: Breakdown of Danish exports on recipient countries



Source: Statistics Denmark.

Chart 4A: Monthly interventions by Danmarks Nationalbank, 1987-2002



Source: Danmarks Nationalbank.