

Ten years have passed since the start of the monetary union. The 2009 report of the Economic Policy Group analyses the economic record of the countries that joined at the start and how it has been affected by the common currency and the common monetary policy. The areas covered are monetary policy, fiscal policy, financial integration, foreign trade and foreign direct investment.

Denmark, Sweden and the UK have chosen not to join the monetary union. The report also compares their economic record to that of the euro countries, and assesses if the record would have been different had the three outsiders joined the monetary union from the start.

The authors are professors Harry Flam (chairman), Antonio Fatás, Steinar Holden, Tullio Jappelli, Ilian Mihov, Marco Pagano and Charles Wyplosz.

Harry Flam (chairman)
Antonio Fatás
Steinar Holden
Tullio Jappelli
Ilian Mihov
Marco Pagano
Charles Wyplosz

SNS ECONOMIC POLICY GROUP REPORT 2009



EMU AT TEN

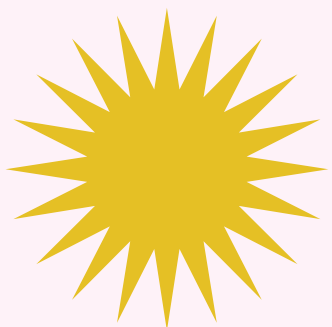
SHOULD DENMARK, SWEDEN

AND THE UK

JOIN?



EMU AT TEN



SNS ECONOMIC POLICY GROUP REPORT

EMU AT TEN. SHOULD DENMARK,
SWEDEN AND THE UK JOIN?

2009

Harry Flam (chairman)

Antonio Fatás

Steinar Holden

Tullio Jappelli

Ilian Mihov

Marco Pagano

Charles Wyplosz

SNS Förlag

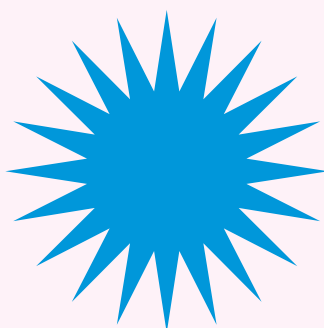
SNS Förlag
Box 5629
SE-114 86 Stockholm
Phone: +46 8 507 025 00
Fax: +46 8 507 025 25
info@sns.se
www.sns.se

SNS – Centre for Business and Policy Studies – is an independent network of leading decision-makers from the private and public sectors who share a commitment to social and economic development in Sweden. Its aim is to improve the basis for rational decisions on major social and economic issues, by promoting social science research and stimulating public debate.

SNS *Economic Policy Group Report 2009*
EMU *at Ten*
Should Denmark, Sweden and the UK join?

First edition
First printing
Harry Flam et al.
© 2008 The authors och SNS Förlag
Graphic design: Patrik Sundström
Tryck: o8 Tryck, Stockholm 2009

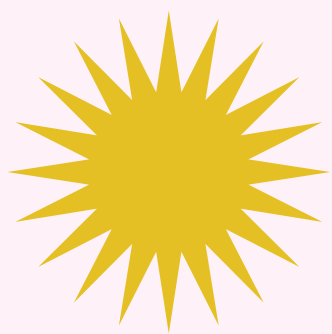
ISBN 978-91-85695-96-6



Foreword 7

- 1 Introduction and summary 9
- 2 Monetary policy 18
- 3 Fiscal policy 40
- 4 Financial integration 58
- 5 Trade and investment 76
- 6 The three outsiders and the monetary union 95

Authors 121



SNS, Studieförbundet Näringsliv och Samhälle (Centre for Business and Policy Studies), is an independent, non-partisan network of leading decision-makers in the private and public sectors. SNS commissions and carries out research, publishes reports and books and arranges seminars and conferences with a view to inform and stimulate public discussion and rational policy-making relating to economic and social issues. The SNS Economic Policy Group (SNS Konjunkturråd) consists of independent scholars who, at the request of SNS, present theoretical and empirical findings relating to current economic policy issues. The Group's annual reports seek to stimulate constructive and fact-based discussions on economic policy.

Ten years ago the euro, the common currency of the European Union, was introduced. The SNS Economic Policy Group Report 2009 analyses the performance of the economic and monetary union for its member countries as well as for the outsiders. The report deals with monetary policy, fiscal policy, financial integration, trade and foreign direct investment and whether the economic performance of the outsiders Denmark, Sweden and the United Kingdom would have been different if they had participated from the start.

Professor Harry Flam, the Institute for International Economic Studies, Stockholm University, is the chairman of the SNS Economic Policy Group 2009. The other members are professor Antonio Fatás, INSEAD, Paris; professor Steinar Holden, Oslo University; professor Tullio Jappelli, University of Naples; professor Ilian Mihov, INSEAD, Paris; professor Marco Pagano, University of Naples and professor Charles Wyplosz, the Graduate Institute of International Studies, Geneva.

Financial support from the Jan Wallander and Tom Hedelius Foundation and the Tore Browaldh Foundation is gratefully acknowledged. SNS also thanks those who have commented on drafts or otherwise contributed to the report.

The Economic Policy Group has enjoyed full academic freedom. As is the case for all SNS publications, the authors bear sole responsibility for the contents.

STEFAN LUNDGREN, CEO AND PRESIDENT, SNS

INTRODUCTION AND SUMMARY

T

HE EU MONETARY union celebrated its tenth anniversary at the beginning of 2009. An assessment of its performance is of interest not only to its members but also to those EU countries that are outside, and in particular to Denmark, Sweden and the United Kingdom – countries that could join but have chosen not to. This report will

- assess the performance of the monetary union,
- propose improvements, and
- assess whether the three outsiders should join.

The monetary union involves replacing the national currencies by one currency common to them all, and replacing the former national monetary policies by a common, supranational monetary policy carried out by the Eurosystem, the European Central Bank (ECB) and the national central banks of the euro countries.¹ The loss of mon-

1. The Governing Council of the ECB decides on and the national central banks implement the monetary policy.

etary independence was expected to affect governments' ability to stabilize the economy in the face of business cycles and other shocks. Fiscal policy became the main instrument for stabilization. The introduction of a common currency was also expected to affect financial markets, trade in goods and services, and investment across national borders. The three outsiders reacted differently to the establishment of the monetary union. Denmark pegged its currency to the euro, in effect giving up its monetary independence, while Sweden and the UK both adopted a monetary policy with an inflation target carried out by an independent central bank.

This report examines five issues:

- monetary policy,
- fiscal policy,
- financial integration,
- trade and foreign direct investment, and
- whether the economic performance of the three outsiders would have been different had they participated from the start.

It must be stressed at a time when the interest is focussed on the ongoing financial crisis that the report studies the whole euro period. Although the financial crisis has severely affected the world economy at the end of the ten years with the euro, most of the period has been marked by what has been called The Great Moderation, a period of relative economic stability. The financial crisis and its repercussions constitute a severe test for the monetary union, and it is as yet unclear what the outcome will be. The ECB has performed very well so far and seems to have been faster in taking in the importance of the crisis than other central banks.

It should also be stressed that while the report concentrates on economic issues, the EMU is a political as much as an economic project. Throughout its lifetime, the EU has used economic projects for achieving the ultimate goal, namely »... an ever closer union of the peoples of Europe«. EMU is the latest step in this direction, following such measures as the elimination of tariffs in the 1960s, various schemes for the stabilization of exchange rates in the 1970s and 1980s, and the establishment of the Inner Market in the 1990s.

Monetary policy

The ECB has successfully achieved

- a low and stable rate of inflation, and
- credibility for its inflation target (»below, but close to 2 per cent«).

The extent to which this success depends on the ECB or on the relative stability of the world economy up to 2007 is not entirely clear. Other central banks, among them the Swedish Riksbank and the Bank of England, have been equally successful in achieving a low and stable rate of inflation. Denmark has successfully linked the rate of the krone to the euro, and has achieved the same (weighted) average inflation rate as the euro area.

Although the ECB has been successful, it is important that its monetary policy strategy, its communication strategy, its decision-making and its general transparency should be raised to the best-practice level if its longer-term expectations about the future course of the economy are to be better managed. The ECB should thus

- determine and make public official forecasts for output, inflation and the monetary policy rate two or three years in advance, and
- publish the minutes of the meetings of the Governing Council.

The criteria for joining the currency union were designed with fiscal prudence and sustainability in mind, and were already controversial when they were adopted in 1991. The economies of the new member states are experiencing a period of structural change and rapid growth that tends – for structural reasons – to produce relatively high inflation, making it practically impossible for them to meet the entry criteria of low inflation and fixed exchange rates against the euro. Their catching-up process may take a generation or more. The entry criteria should either

- not require fixing the exchange rate and keeping inflation at a relatively low rate for a certain time before entry, as they do now, or
- be reinterpreted in such a way as to make it easier for new member states to join the monetary union.

Fiscal policy

Fiscal policy includes automatic stabilizers, i.e. the automatic counter-cyclical adjustment of public revenues and expenditures in the course of the business cycle, and discretionary fiscal policy, i.e. discretionary changes in revenues and expenditures undertaken by policy-makers to stabilize the economy or for other reasons. The abdication of a national monetary policy puts more weight on discretionary fiscal policy when it comes to stabilizing the economy. The record is mixed:

- The monetary union does not seem to have had any significant effect on the dynamics of public debt and deficit in the euro area.
- Differences in the business cycle at a given point in time across both euro and non-euro countries have become much smaller since the early 1990s.
- Some euro countries exhibit similar debt and deficit dynamics as Denmark, Sweden and the UK.
- Automatic stabilizers are fairly strong and have worked well.
- Denmark, Sweden and the UK are very similar to the euro area in terms of automatic stabilization.
- National discretionary fiscal policies tend to have been procyclical and the overall fiscal policy stance of the euro area has been strongly procyclical and thus destabilizing.
- The ceilings on public deficits and debt imposed by the Stability and Growth Pact have helped to reduce the volatility of discretionary fiscal policy and, consequently, to stabilize the economy.

Persistently large public debts and deficits in many of the euro area countries (among them France, Italy and Germany) and procyclical fiscal policies are a sign of poor policy-making. Many countries are in urgent need of

- a more transparent and well-defined framework for fiscal policy-making, and
- broad political support for such a framework.

Financial integration

The replacement of national currencies by a single currency has predictably led to the integration of financial markets:

- Money and government bond markets are fully integrated in the euro area, i.e. the rates are practically the same for instruments with the same cash flow.
- Corporate bond markets are very integrated.
- Equity markets have become somewhat more integrated, but the different clearing and settlement systems represent barriers to any more substantial integration.
- The medium and long-term corporate credit markets, the consumer credit market and the mortgage market all exhibit persistent interest rate differentials.

The report proposes several measures to promote further integration:

- Greater transparency in the corporate bond market by publishing transactions data.
- Improved enforcement of loan contracts in many countries.
- Sharing information about loan applicants between countries.
- Uniform deposit guarantees.
- Supranational regulation and supervision of transnational financial institutions.

The financial crisis has drawn attention to the need for the last two of these measures in particular.

Trade and foreign direct investment

The elimination of nominal exchange rates within the monetary union has led to

- a substantial increase in trade within the euro area,
- a smaller but still substantial increase in trade between the euro area and countries outside it,
- no certain effects on foreign direct investment within the euro area, and
- a possible increase in foreign direct investment into the euro area from countries outside it.

The common currency and the common market for goods and services complement each other. The rules underlying the Inner (Single) Market – free movement of goods, services, capital and labor – are imperfectly implemented and trade barriers remain in important markets for services. A fuller implementation of the rules and the elimination of the remaining trade barriers would lead to further increases in trade.

What if Denmark, Sweden and the UK had joined in 1999?

Economic growth has been higher in the three outsider countries since 1999 than in the euro area in terms of a weighted average, and roughly the same in terms of an unweighted average. However, the monetary policy regime should have little or no effect on long-run growth.

The monetary and fiscal policy records of the three outsiders relative to these in the euro area can be summarized as follows:

- *Denmark* has fixed its exchange rate to the euro and has closely followed the monetary policy rate of the ECB, except in the fall of 2008 when it had to raise the interest substantially above that of the ECB to defend the fixed exchange rate. Its inflation rate has been the same as the (weighted) average of the euro area, while its annual inflation has deviated less from the 2 per cent goal.
- *Denmark* has, on average, had a substantial and positive fiscal balance and has been able to reduce its public debt very substantially. Its GDP-gap – the deviation of GDP from the trend – has followed the same course as that of the euro area but has deviated substantially on the positive side since 2005.
- *Sweden's* monetary policy rate has closely followed that of the ECB. It has had a lower inflation rate – 1.4 as compared to 2.1 per cent up to 2008 – and the same average deviation from the target rate.
- *Sweden* has also had a positive average fiscal balance and has been able to reduce its originally large public debt very substantially relative to GDP. Its GDP gap has followed the same pattern as that in the euro area, with relatively small deviations.
- The monetary policy rate of the UK has followed the pattern of the ECB rate but at a consistently higher level. It has had a lower average inflation rate – 1.6 as compared to 2.1 per cent up to 2008 – and a somewhat lower average deviation from the 2 per cent target rate.

- The fiscal balance of the UK has been negative but smaller than that of the euro area while public debt remained at a constant level relative to GDP until recently, when there was a drastic increase in the deficit. The country's GDP-gap has followed the pattern of the euro area, but deviated substantially in 2004–2005.

The fact that Denmark has fixed its exchange rate to the euro and that its monetary policy rate has closely followed the ECB's suggests that

- Denmark would have had essentially the same macroeconomic performance if it had joined the monetary union in 1999.

Sweden's monetary policy rate has also closely followed that of the ECB and its GDP gap has remained similar to that of the euro area. We conclude that

- Sweden's macroeconomic performance would probably have been quite similar to its actual performance if it had joined the monetary union in 1999, and
- its nominal effective exchange rate would have been more stable, with more persistent changes.

The monetary policy rate of the UK has followed the same pattern but it has been consistently higher than that of the ECB. Compared with Sweden, its business cycle has been less synchronized with that of the euro area. We conclude that

- the UK would probably have experienced somewhat higher rates in both growth and inflation if it had participated in the monetary union, as well as
- a more stable nominal effective exchange rate, together with more persistent changes.

The report also considers the possible effects on trade, foreign direct investment, wage setting and political influence. It concludes that

- trade would have increased substantially, and more so for Sweden and the UK than for Denmark,
- the effect on the inflow of investment would probably have been positive,
- the effect on wage setting is unclear, and
- the three outsiders' general political influence in the EU would not have been affected to any considerable extent since the loss of political influence due to remaining outside has been slight.

Should Denmark, Sweden and the UK join?

The decision to join the monetary union depends on the weight assigned to the three main arguments:

- The loss of monetary independence and, consequently, of a certain ability to stabilize the economy. Fiscal policy is not a perfect substitute for an independent monetary policy. The weight of this argument mainly depends on three factors: (1) The level of synchronization of business cycles, which is increasing over time by steadily increasing economic integration. The three outsiders' business cycles are highly synchronized with that of the euro area, but not as highly as those of the core countries. (2) The quality of fiscal policy-making. Denmark and Sweden in particular have a rules-based framework for fiscal policy with wide political support that has been very successful in maintaining fiscal discipline and reducing high public debts to relatively low levels. This increases their ability to use fiscal policy for stabilization. (3) The flexibility of the labor market. Denmark, Sweden and the UK have relatively flexible labor markets compared to most euro countries. Labor market flexibility increases the ability to adjust to shocks.
- The benefit of a more stable nominal – and thereby real – effective exchange rate. The weight of this argument depends on the extent of the country's trading and how trade is distributed between the euro and other currencies. The three outsiders are very dependent on trade and about half of their exports is directed to euro countries. The experience of Denmark, Sweden and new EU member states in 2008 demonstrates that the euro can be a safe haven against macroeconomic volatility and currency speculation.
- The benefit of more trade and possibly of more investment inflows. The weight of this argument seems to be stronger for Sweden and the UK than for Denmark.

The report concludes that *Denmark* is well positioned in terms of public finances, fiscal policy-making, labor market flexibility and the level of unemployment to participate in the monetary union. It has little or no monetary policy independence since it has tied the krone to the euro. It would therefore clearly gain by joining the monetary union.

Sweden and the UK are also well positioned in terms of labor market flexibility and a relatively low level of unemployment. Sweden has a better record than the UK in terms of fiscal discipline, but both have

relatively low levels of public debt. It is not clear at present that the benefits of more trade and increased nominal and real exchange rate stability outweigh the cost of giving up the independent monetary policy. The benefit of an independent monetary policy has, however, been small during the past ten years, and should decrease further with increasing economic integration.

MONETARY POLICY

FROM THE VERY beginning, the single currency has been controversial. Economists pointed out that it did not meet the Optimum Currency Area criteria. Ordinary people were wondering why they should give up their national symbols. Some EU member countries were highly skeptical, and two of them actually obtained an exemption. Although other monetary unions had been functioning satisfactorily, never before had several developed countries, some of them quite big, decided to adopt a common currency.

Ten years on, there is no doubt that the euro area can in fact function, pretty well. Many of the old fears have simmered down, but new ones have emerged. It is noted in the first part of this chapter that inflation has been lower than ever before during the postwar era, but that growth has been disappointing and that the ECB has not developed convincing monetary policy or communication strategies.

The monetary union was created mainly to »complement the Single Market«. Although the euro lies at the heart of the European Union, several countries have failed to adopt it. Some of these are

older member states, who decided not to do so, while others are new member states, which have not been deemed fit for it. The criteria that were designed for launching the monetary union were debatable then, and are even less appropriate now. This issue will be developed in the second part of the chapter, where the long-debated issue of how to coordinate macroeconomic policies – something which has not progressed very much so far – will be taken up. One of these is that there is no strong case for coordination, another is the sheer size of any possible such forum. Yet, the Eurogroup – the group of euro area finance ministers – is assuming growing importance, in effect sidelining the non-euro area members.

The concluding section notes that success so far does not guarantee success in the future. The tenth year of the euro saw two major shocks – the sharp increase in commodity prices and the financial crisis – and marked the end of The Great Moderation. The Great Turmoil launched a serious challenge. It has already revealed some fault lines.

The record

INFLATION: A SUCCESS

The prime objective of the Eurosystem, as stated in the Maastricht Treaty, is price stability.¹ This goal has been achieved. In the whole postwar experience, inflation has never been so low for so long in all the euro area countries, see Table 2.1. The achievement of price stability cannot be exaggerated. Along with controlling the instability of intra-European exchange rates, which has been achieved, price stability was by definition a key objective. It is also testimony to the institutional choices embedded in the Maastricht Treaty, in particular the independence of central banks. The benefit to some countries (Greece, Italy, Spain and Portugal) has been immense.

Surprisingly, however, most Europeans believe that the adoption of the euro has been a major source of inflation. Clearly, they are still affected by the jumps in price at the time of the changeover. These jumps concerned cheap and oft-purchased goods, which may explain their persistent effect on people's minds. Nonetheless, the same public opinion polls show that, at least until the recent rise related to the

1. The Eurosystem consists of the ECB, which decides on monetary policy, and the central banks of the euro countries, which implement it.

TABLE 2.1 Inflation before and after the euro.

	Austria	Belgium	Finland	France
1955–1998	3.8	4.0	6.3	5.6
1999–2008	1.9	2.0	1.7	1.7
	Luxembourg	Netherlands	Portugal	Spain
1955–1998	3.7	4.0	10.3	8.8
1999–2008	2.4	2.2	2.9	3.2

Source: IMF.

oil and commodity price shocks, inflation had ceased to be a major concern.²

In most European countries, central banks enjoyed very little independence until the Maastricht Treaty called for a change. Not only were central banks routinely called upon to finance budget deficits, but many of them were actively involved in channelling savings into particular industries or even particular companies. Central bank independence is another major benefit from the adoption of the euro, and it applies to all EU member countries.

Inflation differentials

Not surprisingly, inflation rates have not been equal within the euro area. As a result, real exchange rates have undergone significant changes. This is shown for some countries in Figure 2.1, which exhibits its real effective exchange rates vis-à-vis 35 other countries. This pattern is raising concerns, in particular whether the common monetary policy's one size fits all member countries. Interpreting Figure 2.1, however, can be tricky.

Divergences can reflect initial over- or undervaluation. There is much agreement that the Deutschmark was initially overvalued, which explains Germany's subsequent real appreciation vis-à-vis other euro area members. In such a case, we simply observe a welcome return to equilibrium. Real exchange rate movements are also equilibrium changes when some countries go through a catch-up process.

2. Eurobarometer surveys show that in 2006 inflation is mentioned as »one of the two most important issues« by 16 % of respondents, far below unemployment, crime and immigration. In the latest survey it has leaped to first place (37 %).

Germany	Greece	Ireland	Italy
3.1	10.5	6.8	7.3
1.6	3.2	3.7	2.3
Denmark	Sweden	Switzerland	United Kingdom
2.1	3.2	6.5	4.2
2.1	1.2	0.9	2.7

In that case, the Balassa-Samuelson principle predicts a continuing real appreciation. This seems to be, in part, what has driven Ireland's real appreciation.

Some concern is justified when the changes are not of an equilibrium nature. Inflation rates can differ because some countries du-

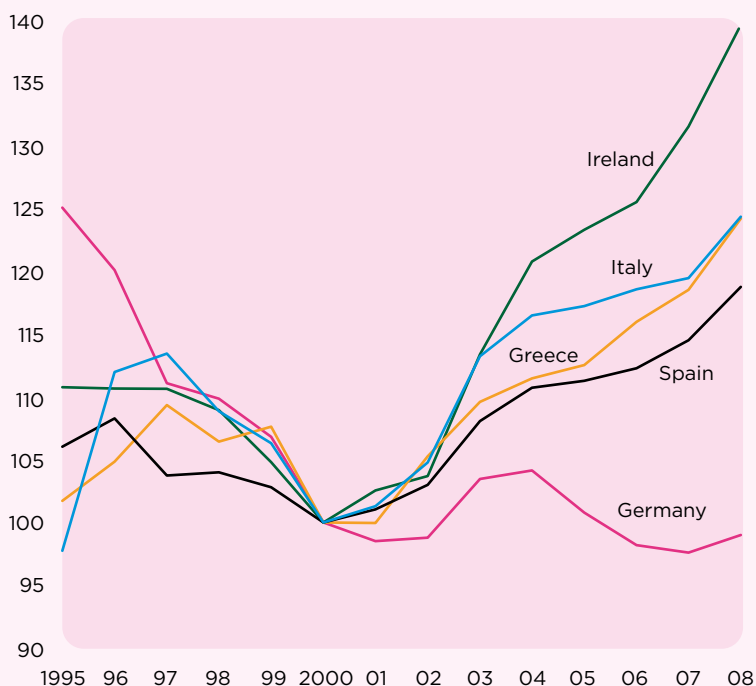


FIGURE 2.1 Real exchange rates in selected countries.

Source: AMECO.

rably pursue undisciplined fiscal policies, which continuously raise demand ahead of potential growth. A particular aspect is the raising of wages in the public sector, sometimes seen as the source of higher inflation in Greece, Italy or Portugal, for example. This might justify the adoption of the Stability and Growth Pact, an issue to which we return later, with a negative conclusion.

Another worrisome feature is the Walters Critique, which notes that real interest rates are lower where inflation is higher. This implies that the common monetary policy is more expansionary in high inflation countries. The concern is that inflation rates would increasingly diverge and threaten the monetary union. While the link between inflation and real interest rates is undeniable, the doomsday prediction is most likely unjustified. Indeed, continuous real appreciation is bound to undercut external competitiveness and thus reduce aggregate demand, eventually bringing inflation rates down. It is too early to know whether the Walters Critique should be dismissed. The evidence is that current accounts have turned negative in most countries that exhibit real appreciation not linked to equilibrium forces.

GROWTH: NO LUCK

Growth in the euro area has generally been a lackluster affair. Long-run growth is not related to monetary policy, so this is not a question that concerns the Eurosystem. On the other hand, monetary policy can be a powerful countercyclical instrument. Before the euro was launched, there was widespread fear that the Eurosystem would seek to establish a reputation as a determined opponent of inflation by neglecting economic growth and employment. These fears sprang partly from the Maastricht Treaty, which identifies price stability as the Eurosystem's primary objective, with »the economy« as a secondary issue that should not »prejudice the price stability objective«. Such fears were further fanned by the Eurosystem's chosen terminology that was carefully picked to emphasize the legacy of the Bundesbank.

It soon appeared rapidly turned out that the Eurosystem was conducting its policy in a flexible manner. The first quarters of the euro's existence were marked by its sizeable depreciation, which could have been used by a hawkish Eurosystem to drive up its interest rates. In fact, it was less a euro depreciation than a US dollar depreciation. Moreover, inflation was low because all member countries had to fulfill pass the convergence criteria to be admitted into the monetary union.

MONETARY POLICY STRATEGY

Discussions of what the Eurosystem is trying to achieve directly points to its strategy, which in fact has been laid out in much detail. The strategy includes a definition of price stability – close to, but below 2 per cent – which is a *de facto* objective since the Treaty assigns price stability as its main objective. It also states the Eurosystem will use the interest rate to achieve this objective based on two pillars: (1) an analysis of a monetary aggregate (M3) growth rate, and (2) an analysis of all other relevant factors. This strategy is directly inspired from the Bundesbank, whose credibility the Eurosystem sought to borrow.

The Bundesbank, arguably one of the world's most prestigious central banks, championed monetary growth targeting in the 1970s. This explains the monetary pillar. However, essentially because the public's demand for money proved to be less stable as financial deregulation proceeded, the Bundesbank gradually decreased its reliance on the monetary pillar. By the late 1990s, best practice had shifted to the inflation targeting strategy. This explains why the two-pillar strategy has been controversial from the start. Continuing instability of money demand – and the Eurosystem's inability to follow its monetary aggregate reference growth rate – led to demoting the monetary pillar to second rank in 2003. Still, the Eurosystem's insistence that money growth matters puts its official strategy at odds with the general evolution of central banking and with its own actions. As noted above, for all practical purposes the Eurosystem acts as inflation-targeting central banks. The disconnect between the official strategy (words) and actual practice (deeds) complicates communication and, quite possibly, decision-making, as discussed below.

DECISION-MAKING: A MUDDLE

The Maastricht Treaty provides precise instructions regarding the decision-making process within the Eurosystem.³ It clearly states that policy decisions require a majority vote. It is surprising, therefore, that the Eurosystem explicitly states that decisions are reached by consensus and that votes are not taken since they are not needed: »As you know, we do not vote and have never voted in the past. [...] I would say that we had a very important discussion, weighing up very carefully the pros and cons of the various positions that we could take,

3. Protocol on the Statute of the European System of Central Banks and of the European Central Bank, Art. 10.

and ultimately came to the decision, by consensus.⁴ Nonetheless, the Eurosystem has taken the initiative to propose a new voting system, in preparation for its enlargement. This is confusing, to say the least.

The Eurosystem's response is that it wants to avoid giving the impression that any decisions go against the wishes of any particular member country. Decisions are taken by the Governing Council, which includes the six ECB Executive Board members and the governors of the national central banks. The risk, it is argued, is that opposition by national bank governors could be seen as an indication that the decision in question runs counter to the interests of their own countries, even though they do not represent their countries and are even forbidden to discuss national conditions. Admitting that votes are taken, it is felt, would prompt requests for revealing information, that could be difficult to resist. Thus, the consensus rule is a shield against erroneous or ill-intended interpretations that could sap the authority of the Eurosystem.

This is a valid concern, but there are powerful counter-arguments beyond the purely legal. It would of course be wonderful if all the members of the Governing Council systematically agreed all the time. Economists, however, are known to be an argumentative lot. The probability of their always agreeing on anything, and on monetary policy in particular, is infinitesimal. Taken together, the records of other central banks that publish their voting records suggest an estimated probability $1.1 \cdot 10^{-22}$ per cent.⁵ It follows that when decisions are taken by consensus minority views may be heard but are not acknowledged. Given these conditions, the incentive for anyone to develop a minority view is slight. This is worrying in view of the evidence that group decision-making is effective, which suggests that genuine debates tend to produce better decisions.⁶

TRANSPARENCY: BEHIND THE CURVE

A related question concerns is the transparency of the Eurosystem. In recent years research has built a strong case for central bank transparency.⁷ The argument is based on the old Milton Friedman conclusion,

4. Trichet (2008).

5. Geraats et al. (2008).

6. Blinder and Morgan (2005)

7. For instance, Bernanke (2007), Blinder (1998), Geraats (2002), Gosselin et al. (2008), Svensson (2005), Walsh (2007) and Woodford (2005). For an opposite view, see Cukierman (2007).

updated under the New Keynesian label, according to which long-term expectations are a key driver of inflation and output. This implies that monetary policy is as much about shaping expectations as it is about choosing the appropriate interest rate. From this, it naturally follows that a central bank is more successful at achieving low inflation when it can affect expectations about its own future actions. This explains the extreme care that central banks now accord to their communication strategies. Ultimately, however, communication alone cannot succeed if the central bank is opaque.

Right from the start the Eurosystem has recognized the importance of communication. The President and Vice-President of ECB always hold a press conference immediately after the Governing Council's policy meetings.⁸ However these conferences are extremely standardized and frequently resort to code words, leaving the impression that observers will have to »read in-between the lines«.

Over the years the Eurosystem has shown a certain willingness to improve its transparency. The ECB now publishes output and inflation forecasts four times a year. At the same time, however, it emphasizes that these forecasts are produced by the staff and do not necessarily reflect the views of the Governing Council members. In contrast to this, some central banks such as the Bank of England, the Bank of Norway and the Swedish Riksbank, publish forecasts of the policy makers. The Federal Reserve produces a chart showing the median range of Federal Open Market Committee members, together with the maximum and minimum forecasts.⁹

The Eurosystem adamantly refuses to publish the minutes of its Governing Council as many other leading central banks do. The reason is the same as previously, namely the fear of unleashing nationalistic reactions. To critics who note that minutes are not always attributed, the Eurosystem points out that there would still be the risk of guesswork that might be not only misguided but also divisive.

The Eurosystem claims to be fully transparent, insofar as it never takes the markets by surprise. Rather, it endeavors to »prepare« the markets for its next decision. Over the years, it has honed a system of code words – sometimes referred to as traffic lights – that are then deciphered by the markets. This is a narrow definition of transparency.

8. The Governing Council normally meets twice a month, once to decide on the interest rate and once for housekeeping.

9. The range is a band that excludes the three highest and the three lowest forecasts of the twelve-member FOMC.

It contradicts the idea that monetary policy operates primarily by affecting long-term expectations, while »next moves« are important mainly as a signal of central banks' short-term intentions.¹⁰ This stands in contrast with the practice of some central banks (New Zealand, Sweden, Norway) which have started to publish their own forecasts of the future policy interest rates, i.e. their own best guesses of what their actions will be over the next two or three years.

Thus, while the Eurosystem makes obvious efforts to communicate its near-term intentions, it is much less transparent when it comes to communicating longer-term aims. The question then is whether partial transparency, as theory predicts, reduces the effectiveness of monetary policy. No formal evaluation of this issue has yet been produced. A glance at the data, however, provides a suggestive answer.

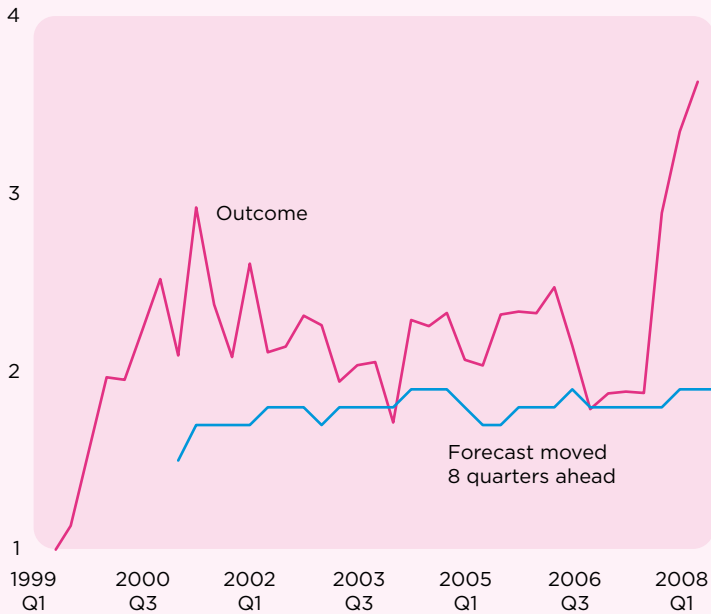


FIGURE 2.2 Inflation: Forecasts and outcomes.

Source: ECB. Note: »Outcome« is inflation measured each quarter in relation to the same quarter one year before. The »forecast« curve indicates the corresponding average two-year-ahead inflation forecasts as reported each quarter by the ECB, moved forward by eight quarters.

10. Some critics argue that the Eurosystem should not even tie itself down by pre-announcing decisions.

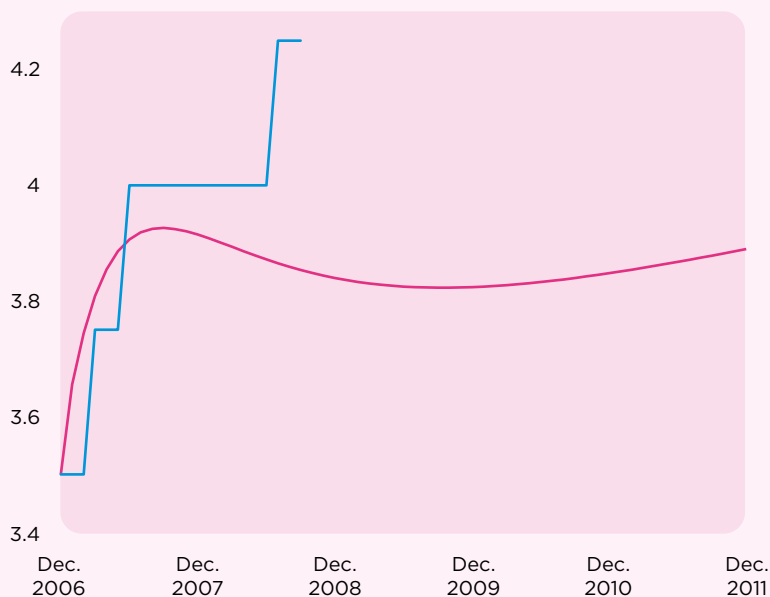


FIGURE 2.3 Interest rates: Actual and expected.

Source: ECB. Note: The blue curve indicates the Eurosystem's main refinancing rate from December 2006 to September 2008. The red curve shows the simultaneous forward rates over five years as implied by the December 2006 yield curve.

Figure 2.2 displays inflation forecasts for two years ahead, together with the corresponding inflation outcome. The striking feature here is the stability of inflation forecasts »close to, but below 2 per cent« – the Eurosystem's stated »medium-run« objective. This suggests that the Eurosystem has established a high level of credibility, although the outcome has systematically exceeded expectations.

Credibility, however, differs from transparency. If the central bank is transparent, the markets should be able to anticipate its actions closely over the normal policy horizon of two to three years. One way of checking this is to compare the instantaneous forward interest rate – extracted from the yield curve – with the policy rate. Such a comparison is provided in Figure 2.3. It shows the forward rate computed by the ECB in December 2006 over a period of five years as well as the Eurosystem's main refinancing rate as subsequently observed. After holding its policy rate at 2 per cent for 30 months, the Eurosystem started to raise this in December 2005. By December 2006, when the ECB started to publish the yield curve and the implied forward rate,

the policy rate had reached 3.5 per cent. At first, the markets thought that the interest rate would peak at 3.9 per cent. A year later, when the interest rate had already reached 3.5 per cent, the markets were still underestimating the 4.25 per cent rate to which the current tightening would lead. In fact, the Eurosystem would probably have raised the policy rate above 4 per cent earlier, had the financial crisis not already suspended the tightening trend. Since the interest rate channel of monetary policy operates via the long-term rate, the policy was actually less tight than had been intended by the Eurosystem. Lack of transparency reduced the effectiveness of monetary policy.

MIRACLE OR LUCK?

With poor strategy and limited transparency, the Eurosystem has scored an unmistakable success on the key inflation front. Is this a miracle? In fact, Table 2.1 shows that record-low inflation has also been achieved in the non-euro area member countries (Denmark, Sweden and the UK) and most other developed countries such as Canada, Switzerland and the US. Indeed, the period up to mid-2007 is sometimes referred to as The Great Moderation, during which low inflation was ubiquitous. One reason was that there were few inflationary shocks. Another reason was the emergence of low-cost competitors in Central and Eastern Europe and Asia, which made it easier for central banks in the more advanced countries to achieve price stability. Yet another reason was the widespread adoption of independence for central banks. It also helped that monetary policy strategies had vastly improved as the inflationary process and the role of central banks in shaping expectations both came to be better understood.

Economists are currently attempting to disentangle the respective roles of these various factors. Obviously, the Eurosystem could have made mistakes and been less successful. In fact it has done as well as the other central banks, which is no mean feat for a new and untried institution handling a large and relatively diversified economic space. Yet, it does not deserve to be singled out as a particularly successful inflation-fighting central bank – luck has obviously helped.

The Great Moderation came to an end in 2007. Sudden increases in production costs are among the most challenging disturbances that a central bank can face. The 2007-8 oil shock, aggravated by a sharp rise in food prices, was one such dreaded event. Financial instability is another phenomenon that strikes fear in central banks. Having to face both at the same time – with the financial crisis probably biggest ever

known – is truly putting central banks to the test. It is too early to draw any conclusions, or even to tell the story, since events are unfolding as this is written.

The only observation that can be made at this stage is that inflation seems to have risen less in the euro area than in other advanced economies. This is undoubtedly related to the strength of the euro, which remains unexplained and may therefore have been another lucky break for the Eurosystem.

Policy coordination and the outsiders

The monetary union has two particular characteristics. It does not include all the EU members. Although one fundamental idea was to provide exchange rate stability within the Single Market, only 16 countries of the 27 have adopted the euro – a situation that divides EU member countries into insiders and outsiders. The other characteristic is that monetary policy is a »federal« undertaking – but, there is no federal budget. The Commissions budget is very small (just over 1 per cent of EU's GDP) and limited essentially to three main domains: administration, the Common Agricultural Policy and regional transfers.

Macroeconomic management in the EU is therefore conducted at many levels: the n Treasuries of euro-area countries, the $27 - n$ Treasuries of outsiders, the $27 - n$ central banks of outsiders, and one central bank. Although some countries matter more than others on account of their relative size, this means a total of $54 - n + 1$, or 39 policymakers when $n = 16$. This raises a number of issues regarding coordination.

COORDINATION WITHIN THE EURO AREA

As instructed by the Maastricht Treaty the Eurosystem tailors its policy to the area as a whole, rather than to particular member countries, and rightly so. Consequently, individual euro area countries can rely on fiscal policy only as a macroeconomic management tool. The usefulness of fiscal policy is a matter of much debate, but the very fact that it can be used raises the question of how the $n + 1$ actors coordinate their actions. This question in turn, can be divided into coordination between the n governments and the central bank on the one hand, and the coordination of fiscal policy among the n governments on the other.

It is by no means clear that coordination is better than non-coordination. In principle, coordination is desirable in the presence of externalities, i.e. when one actor's actions affect the other actors. Obviously, monetary and fiscal policies interact, but that does not mean that coordination is always desirable. Many arguments undermine the case for coordination: different objectives, coordination costs, a multiplicity of players who can form coalitions, multi-level interactions, etc.¹¹ Moreover, the presumption that governments are benevolent – i.e. that they act solely to increase welfare – is far from accepted. Finally, the fact that we do not know what the best model is can make coordination counter-productive. Such considerations do not necessarily add up to a strong case against coordination, but they certainly weaken the case for it.

The Treaty envisions some coordination between the governments and the central bank. The President of the Eurogroup of Finance Ministers can attend the meetings of the Governing Council of the Eurosystem, without a voting right. However, as noted, the Council does not take votes. Conversely, the Eurogroup invites the President of the ECB when it discusses issues affecting monetary policy. These arrangements are formal rather than effective. The Eurogroup brings together $n + 1$ participants and the Eurosystem's size is $n + 7$ (the n national central bank governors, the six members of the ECB Board and the President of the Eurogroup). Their meetings are normally far too short to allow for any serious give-and-take. Detailed discussions are held in other fora, for example the Eurogroup Working Group of Treasury deputies, to which the ECB is also invited.

The members of the Eurosystem have also hinted that the system's independent status reduces its scope for coordination with member governments. Obviously, to be effective, coordination must, occasionally at least, bind certain decisions. The Eurosystem may thus be reluctant to be drawn into actions that are not fully consistent with its price-stability objective. These rules out any formal coordination.

On the other hand, the Eurosystem systematically comments on national fiscal policies. This is part of the regular monthly press conference after the Governing Council's policy meeting. In other countries where the central bank is independent, it is an unwritten rule that central banks abstain from commenting on fiscal policy, much as governments refrain from commenting on monetary policy. Such com-

11. See Pisani-Ferry (2006).

ments are usually counter-productive, since they are ineffective and can upset relations between the central bank and the government.

Coordination between governments is even murkier. It is sometimes claimed that the Stability and Growth Pact could allow for coordination on fiscal policy.¹² This is questionable. The pact aims at reducing public deficits, not at assigning responsibility for a desirable mix of centralized monetary policy and decentralized fiscal policies. This has led some to suggest establishing an »economic government« that could conduct face-to-face discussions with the ECB.¹³ The euro group has been created partly to placate those countries – in particular France – that have been advocating greater coordination. The euro group plays an important part in implementing the Stability and Growth Pact and in promoting the »frank« exchange of views, but it remains far from constituting a government. In fact, the proponents of economic government have never clarified the tasks to be assigned to such a body.

In fact, since fiscal policy is the only remaining macroeconomic policy instrument, it would seem logical that each country uses it to deal with local conditions. There simply is no reason why fiscal policies should become similar. Coordination therefore should boil down to the exchange of information about future policy actions. The only reason for any restriction on policy independence could be based on the view that fiscal policy actions are not always of impeccable quality. This has led some to defend the Stability and Growth Pact as peer pressure that can improve the quality of national policies. Evidence, for example in Fatás and Mihov (2008), that the euro area distinguishes itself by the degree to which its policies are procyclical suggests that this is not working. This is not surprising. The pact is focused on fiscal policy discipline, an important attribute of good policy, but its rules tend indeed to lead to procyclicality.

THE OUTSIDERS AND MONETARY POLICY IN THE EURO AREA

The Eurosystem's Governing Board brings together the ECB Executive Board and the governors of all the EU national central banks. This is a formal arrangement lacking any policy-making role. Monetary policy is discussed informally in many fora and on a bilateral basis,

12. Brunila et al. (2001).

13. Pisani-Ferry (2006).

but there is no explicit or implicit attempt to coordinate or deal with exchange rates. Given the economic size of the euro area within the EU, outsiders obviously need to monitor their exchange rates relative to the euro. Some of them have joined the ERM – some, such as Denmark by choice, others (like the Baltic States) as one of the requirements for membership of the euro area.¹⁴ Sweden and the UK have decided to shun any such commitment. The others – the Czech Republic, Hungary and Poland – keep postponing their decision.

To simplify somewhat: the outsiders are caught between the two major currencies – the euro and the US dollar – both of which have undergone considerable fluctuations. Figure 2.4 shows the different reactions in Sweden and the UK. Sterling has followed a middle path between the euro and the dollar. After an initial (possibly learning) period, the krona has remained very stable vis-à-vis the euro. This is hardly surprising since both countries have adopted very similar flexible strategies regarding inflation. The most logical interpretation is that Sweden is considerably more integrated with the EU than the UK is, so that its economic situation resembles that prevailing in the euro area. Since the Eurosystem implicitly follows a uniform strategy, monetary policies are sufficiently similar to generate considerable stability in exchange rates. Perhaps too, the exchange markets also regard the krona/euro exchange rate as too important to be ignored by the Riksbank.

This shows that events in the euro area matter a great deal to the countries outside it, especially if their economies are small, very open and closely integrated with the EU. This applies in particular to the nature of monetary policy. So long as the Eurosystem follows a strategy resembling a local one, an outsider's central bank can pursue its domestic objectives while also benefitting from considerable exchange rate stability vis-à-vis its main partner, the euro area. Early fears that the Eurosystem would pay undue attention to inflation and to the monetary pillar may help to explain the initial fluctuations of the kroner vis-à-vis the euro. Mounting evidence that the Eurosystem in effect follows a flexible inflation-targeting strategy has thus reduced the risk of sharp fluctuations in exchange rate and has significantly simplified the task for outsiders' central banks.

14. By joining the ERM (Exchange Rate Mechanism), a country agrees to keep the exchange rate against the euro within a band around the so-called central rate.

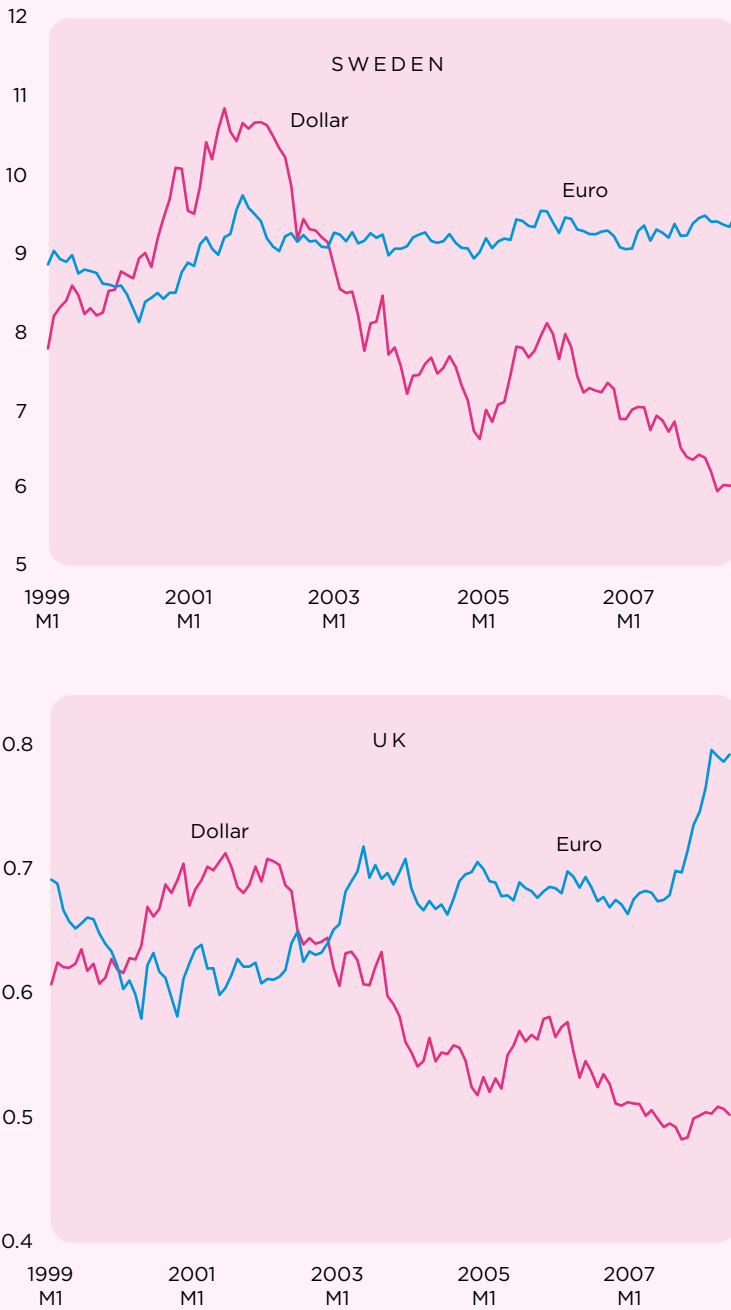


FIGURE 2.4 Exchange rates vis-à-vis the euro and the dollar.

Note: The exchange rate is measured as pounds or kronor per euro or dollar. Source: IMF

The end of The Great Moderation has presented these banks with a new challenge. This applies to Sweden as well as to the UK (home to the world's second largest financial market and therefore more affected by the crisis) both of whose currencies have significantly depreciated vis-à-vis the euro.

COORDINATION AT THE EU LEVEL

Macroeconomic policy coordination at the EU level is currently non-existent. This is not surprising in view of the limited coordination of fiscal policy in the euro area. It has been suggested earlier that the argument for tighter coordination within the euro area is weak. Does this imply that it is even weaker between the insiders and the outsiders?

The case in favor of fiscal policy coordination is in fact very weak, since the externalities presumed to exist within the euro area – common interest and exchange rates – are not in fact present. And yet, as noted in the previous section, to the outsiders, the euro exchange rate is a very important variable. In fact, it was precisely the importance of exchange rate stability within the Single Market that triggered the process that eventually led to the adoption of a common currency. According to that logic, if the outsiders are really concerned about exchange rate stability, they will end up by joining the euro area. And in fact, this is what the European treaties stipulate. In this light, the current situation can be regarded as purely transitory, and the current informal exchanges among the central banks may be sufficient.

The situation is different for the countries that are at present intending to remain outside the euro area indefinitely. Figure 2.4 suggests that the UK is exploiting its monetary policy autonomy. If the arrangement is considered to be satisfactory, which it has been so far, it is possible to imagine it remaining in place indefinitely. Sweden too has been exploiting its monetary policy autonomy, but the benefits appear to be limited.¹⁵ Whether or not they outweigh the costs of an independent currency is a valid question. The Danish case is more clear-cut. The krone is de facto attached to the euro, and autonomy as regards monetary policy is limited. The Danish authorities have indicated repeatedly that they would like to join the euro area, but they face the hurdle of a referendum. The other countries do not enjoy

15. The exchange rate does not indicate how different monetary policy has been in Sweden. It only suggests a degree of similarity.

exemption, and so, like Sweden, they are committed to adopting the euro. But, also like Sweden, they can postpone the step as long as they want – a point that will be considered in the next section.

ENLARGEMENT

Of the twelve countries that have joined the European Union since 2004, only four (Slovenia, Cyprus, Malta and Slovakia) have joined the euro area. Prospects for the other eight other members are not encouraging. Most of the new members are small open countries. Joining a monetary union that has already successfully built up its own credibility is likely to offer significant benefits, like those enjoyed by Greece and Italy.

In 2006, Lithuania's application was turned down. It had been decided early on – at the Copenhagen Summit of 1993 – that new members would have to fulfill the same obligations as older members. One implication of this is that the convergence criteria determining admission to the monetary union apply to the new members.

There is a strong legal basis for the Copenhagen principle. It seems perfectly reasonable that all countries should abide by the same rules. And yet, economic and legal principles do not always mix harmoniously. The convergence criteria were laid down in 1991 with the then EU members in mind. Even so, the criteria were highly controversial at the time, and they remain so today.¹⁶ While Optimum Currency Area principles suggest that admission be based on concrete criteria (labor markets, trade integration and diversification), the convergence criteria focus on inflation and budget balance. This was understandable – if not all together justified – since several large countries have had a history of poor monetary and fiscal discipline. The fear was that they would not support the general objective of price stability in an untried monetary union.

On the other hand, while the deficit ceiling may make sense for the older member states where fiscal indiscipline has been ubiquitous, its application to the new member states is highly problematic. All the new members that are still outside the euro area are former members of the Soviet bloc. They have undertaken massive reforms, unleashing a catch-up process that will take a generation or more to complete. Many of these countries have budget deficits, as shown in Table 2.2. Some of these are unsustainable, but some are justified by

16. This controversy is described in Wyplosz (2006).

TABLE 2.2 Budget balance and inflation in the new member states.

	Budget balance (% of GDP) 2007	Inflation rate	
		2007	2008
Bulgaria	3.4	8.4	9.7
Czech Republic	-1.6	2.8	6.0
Estonia	2.8	6.6	9.5
Latvia	0.0	10.1	15.8
Lithuania	-1.2	5.7	10.0
Hungary	-5.5	8.0	6.3
Poland	-2.0	2.5	4.1
Romania	-2.5	4.8	7.5
Euro area average		2.1	3.2

Source: AMECO Database, european Commission.

the catch-up process. In fact, these countries inherited a very poor and obsolete public infrastructure from their previous regimes. Public investment is therefore potentially highly productive. This means that public borrowing during the catch-up period is almost certain to pay for itself later, when the productivity gains actually materialize. Limiting the deficits therefore means a slower catch-up phase and missed investment opportunities. Fiscal indiscipline is of course also rife in most new member states, but the deficit ceiling does not allow for distinguishing between much needed profitable investments and wasteful spending.

Further, as members of the ERM, and thus subject to its convergence criteria, the Baltic countries have fixed their exchange rates to the euro, and the other new member states also adapt their exchange rate. This means that they have very little autonomy in the conduct of their monetary policies. One would expect that, as a consequence, their inflation rates would converge towards the euro area level. But Table 2.2 shows that this has not happened. This may seem strange but there is a common explanation that does not rule out other factors, including excessively expansionary fiscal policies. As was anticipated long ago, these countries are subject to the Balassa-Samuelson effect, whereby their wages and prices gradually move towards the EU levels.¹⁷ This generates higher inflation – driven not by monetary factors

17. Halpern and Wyplosz (1997).

however, but by a relative price-adjustment process that is structural and inevitable. However, excessive inflation is bound to keep these countries out of the euro area, possibly until the catch-up process is nearly complete.

The possibility of very long delays is disquieting, for reasons of monetary stability, among other things. The new member countries have been required to eliminate all restrictions on capital mobility and are all expected to join the ERM. The combination of capital mobility and an exchange-rate peg is a well-known source of potential instability, as was amply illustrated by the 1993 ERM crisis. There have been no great problems since 2004, but we should remember that these have been the years of The Great Moderation. Any return of currency crises within the European Union is clearly undesirable. Moreover, delays in admission may sap support for membership of the euro area, which might lead some of these countries to emulate Sweden by not joining the euro area at all.

Ideally, all new member states should have been allowed to adopt the euro by now. In some cases, as in Estonia, high inflation caused by a boom and a housing-price bubble would create a problem. But this situation already exists in Ireland and Spain. It could be argued that such a thing is not helpful and it would be worse if even more euro area members faced similar difficulties. This is true, but the economic strength of all the new member states together is too small to make much difference. More to the point, the entry conditions do not preclude high inflation or housing price bubbles from occurring after adoption of the euro.

In any case, admission legally remains subject to the original requirements. The next best solution would be to reinterpret the conditions. They were not applied rigidly in the case of Italy nor – inadvertently – in the case of Greece, and they can be introduced with some degree of flexibility. Some might fear that this could create a precedent. But all the current and future new member states – with the possible exception of Turkey – are small, open, former transition economies, very similar to the current outsiders from the region. In this context the precedent would be welcome. There remains the case of the two countries with an opt-out clause (Denmark and the UK) and Sweden, all three of which meet the required conditions. If that route is not taken, then the outsiders should simply follow monetary policy best practice, adopting a flexible inflation-targeting strategy until they meet the entry conditions. And in fact, this is precisely what we can see happening.

Conclusions: testing times ahead

With the end of The Great Moderation, the Eurosystem is facing its first real challenge. The increase in oil and commodity prices represented a supply shock. We know that there is no easy fix in such a situation and that the best option is to focus on keeping inflationary expectations from rising permanently. This, in turn, calls for a restrictive monetary policy, which is not easy to impose when the economy is inevitably slowing down. In such circumstances the central bank must reassure the public that it is following a well considered strategy, especially if the political leaders start fretting.¹⁸ As noted earlier, a lack of transparency can be harmful in such circumstances.

The second challenge facing the Eurosystem is the financial crisis – perhaps the event most dreaded by all central banks. The Eurosystem has crafted a strategy that provides ample liquidity provision while shielding its monetary policy from the financial turmoil. It has reacted fast and apparently appropriately to several acute liquidity shortages. The main concern is not of its own making, however. Under the current arrangements, the regulation and supervision of banks is a national prerogative. The euro area does not have its own supervisors or regulators, but it relies instead on national bodies. One might well wonder what would happen if a large European bank with important activities in several countries, were to fail. In principle the ECB could intervene as lender of last resort, but this would require prior approval of the fiscal authorities who would ultimately have to bear the cost. There is no guarantee that the process would be as rapid and effective as needed. The crisis has revealed a gaping hole in the euro area's organization, yet there is no indication that the member countries are willing to clarify the issue.¹⁹ This situation also affects the outsiders, especially the UK where all the major banks are represented.

18. French President Sarkozy described the Eurosystem's interest rate increase in July 2008 as the kind of »monetary dumping that sends firms to their knees«.

19. The issue has been identified long ago, see Begg et al. (1998).

- Begg, David, Paul de Grauwe, Francesco Giavazzi, Harald Uhlig and Charles Wyplosz (1998), »The ECB: Safe at Any Speed?«, *Monitoring the European Central Bank* 1, London, CEPR.
- Bernanke, Ben (2007) »Federal Reserve Communications«, Cato Institute 25th Annual Monetary Conference, Washington, D.C., November 14. (<http://www.federalreserve.gov/newsevents/speech/bernanke20071114a.htm>).
- Blinder, Alan S. (1998) *Central Banking in Theory and Monetary Policy Regimes*, Cambridge, MA: MIT Press.
- Blinder, Alan S. and John Morgan (2005) »Are Two Heads Better than One? Monetary Policy by Committee«, *Journal of Money, Credit, and Banking*, 789–812.
- Brunila, Anne, Marco Buti and Daniele Franco (2001) »Introduction« in: A. Brunila, M. Buti and D. Franco (eds) *The Stability and Growth Pact*, Basingstoke: Palgrave.
- Cukierman, Alex (2007) »The Limits of Transparency«, forthcoming in Siklos P. et.al. (eds.), *Frontiers in Central Banking*, Elsevier.
- Geraats, Petra (2002) »Central Bank Transparency«, *Economic Journal* 112 (483): F532–F565.
- Geraats, Petra, Francesco Giavazzi and Charles Wyplosz (2008), *Monitoring the European Central Bank* 6, London: CEPR.
- Gosselin, Pierre, Aileen Lotz and Charles Wyplosz »How Much Information Should Interest Rate-Setting Central Banks Reveal?«, *International Journal of Central Banking*, forthcoming, 2008.
- Halpern, Laszlo and Charles Wyplosz (1997) »Equilibrium Exchange Rates in Transition Economies«, *IMF Staff Papers* 44(4): 430–460.
- Pisani-Ferry, Jean (2006) »Only One Bed for two Dreams: A Critical Review of the Debate over Economic Governance in EMU«, *Journal of Common Market Studies* 44(4): 823–844.
- Svensson, Lars E.O. (2005) »Social Value of Public Information: M&S Is Actually Pro Transparency, Not Con«, *American Economic Review*, forthcoming.
- Trichet, Jean Claude (2008) Press Conference, 10 January 2008 (<http://www.ecb.eu/press/pressconf/2008/html/iso80110.en.html>).
- Walsh, Carl (2007) »Optimal Economic Transparency«, *International Journal of Central Banking* 3(1): 5–36.
- Woodford, Michael (2005) »Central-Bank Communication and Policy Effectiveness«, in *The Greenspan Era: Lessons for the Future*, Federal Reserve Bank of Kansas City, Kansas City.
- Wyplosz, Charles (2006) »European Monetary Union: the Dark Sides of a Major Success«, *Economic Policy* 46: 207–62.

FISCAL POLICY

THE CREATION OF a single currency in Europe has been accompanied by some major challenges to the role of fiscal policy. The challenges came from two main directions. First, as each country had to abandon monetary policy as a tool for stabilizing its national business cycles, it seemed natural for fiscal policy to take a more prominent role in controlling cyclical fluctuations. At the same time, concern about the stability and credibility of the new currency, and the possibility that governments would not internalize the consequences of their behavior, meant that the institutional framework for national fiscal policies became rather restricted, defined as it now was by the limits on debt and deficits of the Maastricht Treaty and further elaborated by the Stability and Growth Pact.

The run-up to the launch of the euro was difficult and driven by the strict criteria defined by the Maastricht Treaty. With the introduction of the euro at the start of 1999, and the replacement of the Maastricht Treaty criteria by the rules of the Stability and Growth Pact, the issues became broader, shifting from a subject of debate among academics

to a real-time challenge for policy-makers. In the early years of the monetary union, the framework for fiscal policy embedded in the Stability and Growth Pact had already been subjected too much criticism and had clearly failed to provide a credible framework for the conduct of fiscal policy. Although the Pact was intended to encourage an environment of discipline, coordination and stability, its constraints in fact became binding for several countries, as well as representing a challenge to macroeconomic stability and the credibility of the Pact in the very first years of the monetary union.

We review the behavior of fiscal policy after the introduction of the euro in several dimensions: procyclicality, volatility, coordination and the role of automatic stabilizers. We describe how the common currency and the constraints associated with the Stability and Growth Pact have shaped fiscal policy among the members of the union. Our focus is on understanding whether the new framework has helped or hurt the conduct of fiscal policy for the members of the euro area and the three members of the EU who opted out of the common currency but were subject to the same fiscal policy constraints.

Our results show that despite the significant change in the institutional setting, the cyclical behavior of fiscal policy in the EU15 countries has not changed much since the introduction of the new currency. The bad news is that fiscal policy tends to be more procyclical in the euro area than it is in other countries, where we see a tendency for fiscal policy to become even more countercyclical, as it has done in the USA. The good news is that the automatic stabilizers are strong, and we have observed a tendency towards countercyclicality in some of the countries. We also note a broad-based decline in the volatility of discretionary fiscal policy in all the major economies. This decline is quite substantial in the euro area, and appears in most of the member states. Further, the discrepancy in fiscal policy across euro-area countries – in terms of the dispersion of cyclically adjusted balances – has decreased threefold since 1999.

The paper is organized as follows: we first provide a framework for assessing the quality of fiscal policy. How can we tell whether fiscal policy has improved or deteriorated since the introduction of the euro? In the next section we describe the behavior of fiscal policy at the national level, while the third section considers whether there is coordination between fiscal policies and examines the stance on euro fiscal policy. The fourth section concludes the discussion.

Defining and measuring »good« fiscal policy

The first problem when it comes to analyzing recent developments in the euro area arises from the fact that consensus regarding what constitutes good fiscal policy is difficult to reach. We adopt a very simple approach in this paper, describing the performance of the fiscal policy authorities and the environment in which they operate under three main headings: (1) long-term sustainability; (2) reactions in fiscal policy to fluctuations in the business cycle; (3) volatility. We assume that good fiscal policy must be sustainable and countercyclical, and that it should not be a significant source of volatility. We look briefly below at the logic behind this characterization.

SUSTAINABILITY OF FISCAL POLICY

In the monetary union context, the Maastricht Treaty identifies sustainability as the main goal of the fiscal framework. This is corroborated by repeated statements from the ECB stressing that »sound fiscal policies and a monetary policy geared to price stability are fundamental for the success of a Monetary Union. They are prerequisites for macroeconomic stability and cohesion in the euro area.«¹

Unsustainable fiscal policy may generate excessive macroeconomic volatility, which in turn would make it difficult to achieve the goal of the central bank regarding the maintenance of stability within the monetary union. This might be more relevant to a monetary union with a decentralized fiscal policy where coordination might be more difficult or simply not in the interest of the national governments.

While sustainability refers to the long-term behavior of fiscal policy, it is also connected in many ways with the discussion of policies for the stabilization of business cycles. The lack of discipline in fiscal policy can complicate the macroeconomic management of the economy. First, from a dynamic point of view, if governments are confronted by unsustainable levels of debt, they will have very little scope for adopting automatic stabilizers in bad times, which means that all the pressure will fall on monetary policy to regulate the business cycle.² Secondly, unsustainable plans will have to be made into sustainable ones by fiscal consolidations, which are likely to have a short-term effect on the economy. Finally, high debt levels lead to higher interest rates and lower levels of investment and growth.

1. Statement of the Governing Council of the ECB, March 21 2005.

2. As pointed out by Melitz (2000) and Perry (2002).

There is yet another connection between sustainability and the cyclical nature of fiscal policy – one that is related to the design and implementation of budgetary plans. When it comes to the discussion of what constitutes a sustainable fiscal policy, it is necessary to measure, characterize and monitor annual budgets. In view of the short-term fluctuations in budgets due to automatic stabilizers, it becomes necessary to capture the structural balance in a given year, i.e. the budget balance adjusted for cyclical changes. Without a proper understanding of how fiscal policy behaves over the business cycle, it is impossible to provide long-term guidance with regard to budgetary plans. This has been one of the major difficulties in implementing the limits on deficits and debt in accordance with the Maastricht Treaty. So long as they were still based on simple principles of sustainability, there were endless discussions on the special circumstances that led to balances that did not correspond with the levels projected. The 2005 reform of the Stability and Growth Pact allowed for a more flexible interpretation of the limits, taking into account the cyclical position of the economy as well. There is no agreement, however, on how this adjustment should be made, and there are some who regard this flexibility as a relaxation of the constraints.

To sum up: although the main concern of the monetary union fiscal policy framework was long-term sustainability, the implementation of the rules have led to debate focusing more on the cyclical behavior of fiscal policy. We will now turn to this debate.

FISCAL POLICY STANCE AND THE MANAGEMENT OF BUSINESS CYCLES

Fiscal policy as a tool for managing business cycles is expected to be countercyclical. Governments are supposed to run a surplus when times are »good« and a deficit when they are »bad«. From the perspective of monetary policy, if this last is not the case, then high deficits during an economic boom may lead to inflationary pressure and may force the ECB to maintain interest rates that are higher than they would otherwise have been.

When analyzing the cyclical behavior of fiscal policy, it is important to recognize that fiscal policy is a combination of automatic stabilizers and discretionary policy, and we cannot forget that, for most countries, most cyclical changes in budgets are a result of automatic stabilizers. Automatic stabilizers tend to be countercyclical, particu-

larly for countries with a large government. The logic is that the size of a government is related to the safety network that it provides.³

When it comes to discretionary fiscal policy, the evidence is less positive. In many countries, governments adopt a procyclical policy (spending more in good times). The evidence is strong in the case of Latin American economies but mixed for those in the OECD and Europe.⁴

We will rely on cyclically adjusted OECD measures of the budget balance to analyze these two components of cyclical fiscal policy.⁵

VOLATILITY

Fiscal policy can be a trigger of business cycles. When governments implement changes in fiscal policy for political reasons or, more generally, for reasons that are not driven by economic conditions, then the changes will lead to fluctuations in output and consumption. In principle, such policies may have a negative effect on the economy if they simply add volatility, which in some cases may slow down growth.⁶

The question of volatility has not been a major concern in the context of the monetary union, but it could be interesting to see whether there is any evidence of changes in the use of discretionary fiscal policy. It is possible that the absence of national currencies has altered governments' prediction for policies that generate a political business cycle.

3. The reason for this link is the empirical regularity described in Gali (1994) and confirmed in Fatás and Mihov (2001b) that large governments display less volatile business cycles.

4. Lane (2003), Wyplosz (2005), Kaminsky, Reinhart and Vegh (2004), and Alesina, Campante and Tabellini (2007) present evidence on the cyclical properties of fiscal policy for this group of countries.

5. For details of this methodology, see Girouard and André (2005). The methodology ensures consistency in the way fiscal policy is decomposed into the different components. A drawback, however, is that it relies heavily on the process of extracting the cyclical component out of fiscal policy, which requires strong assumptions on potential output and cyclical elasticities of different fiscal variables and could potentially create a bias in the results. Blanchard (1993) and Mohr and Morris (2007) discuss the potential drawbacks of cyclically adjusted measures of fiscal policy.

6. The effects of fiscal policy shocks have received a good deal of attention following the publication of Blanchard and Perotti (2002), Fatás and Mihov (2001a and 2003), and Burnside, Eichenbaum and Fisher (2004).

Fiscal stance at the national level

SUSTAINABILITY OF FISCAL POLICY

Figure 3.1 illustrates the development of the debt-to-GDP ratio for the euro area, Denmark, Sweden and the UK. The evolution of this ratio in the euro countries shows a rising trend until the mid-1990s. There is then a clear downward trend from this point on. The same appeared in the UK up to 2001–2002. The trend in the euro area has been interpreted as a clear sign of the discipline that its entry conditions impose on all members. Denmark and Sweden display a similar trend, in part driven by their efforts to qualify for entry into the monetary union. In both cases the trend is stronger than in the euro countries, as the debt-to-GDP ratio drops from over 80 per cent to 20 per cent in Denmark and to less than 40 per cent in Sweden.

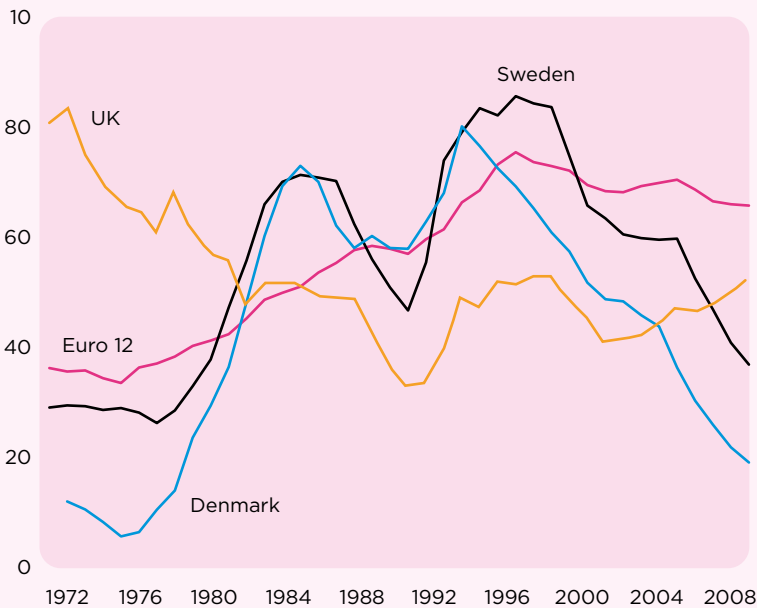


FIGURE 3.1 Gross Government Debt (per cent of GDP).

Notes: Data are from the OECD Economic Outlook. The series for the UK are gross government financial liabilities as a percentage of GDP. For the euro area the series are gross government financial liabilities (Maastricht definition) as a percentage of GDP. The data for 2008 and 2009 are forecasts.

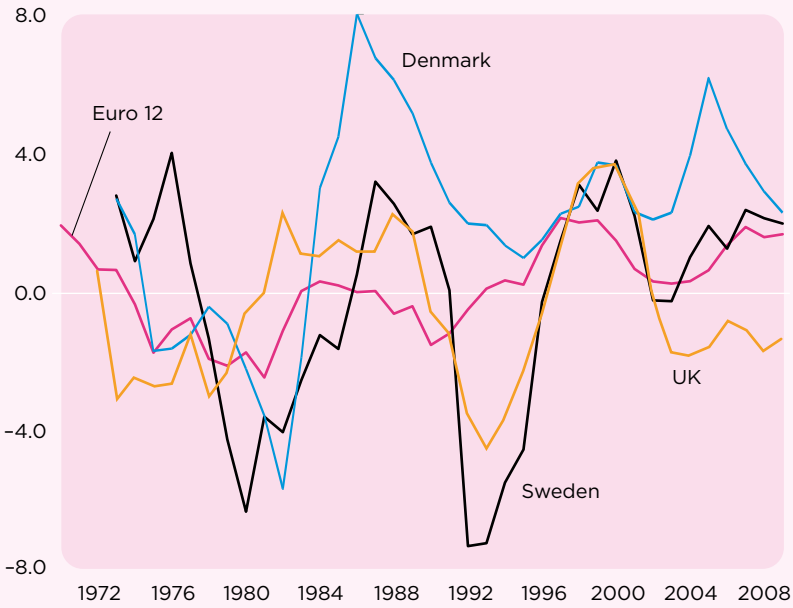


FIGURE 3.2 Cyclically adjusted budget balance as a per cent of potential GDP.

Notes: Data are from the OECD Economic Outlook. Data for 2008 and 2009 are forecasts.

Figure 3.2 provides further insights regarding these trends by presenting structural budget balances, measured as the cyclically adjusted balance as a per cent of potential GDP (to adopt the OECD methodology). The 1970s, the late 1980s and the early 1990s all showed high deficits in all the countries in the sample. We see once more that the 1990s represented years of declining budget deficits for all the monetary union candidates, seeking to qualify for the 3 per cent deficit limit of the Maastricht Treaty.

The graph also suggests that once the final call for those wanting to join the monetary union went out in 1998 on the basis of the 1997 data, efforts to reduce deficits and debt clearly declined. The euro structural balances improve again after 2003–2004, which coincides with a period of faster growth rates.

Did the monetary union have any effect on debt and deficit dynamics? From these two figures it is difficult to find any significant effect. Debt falls fast in Sweden and Denmark, but within the euro area there have been countries reporting a similar decline – namely Ireland, the Netherlands or Belgium, which in the mid-1990s started

with a debt of up to 140 per cent of GDP but managed to bring this down to about 80 per cent. Thus, the overall picture does not reveal any substantive differences in debt and deficit dynamics as between the three outsiders and the members of the monetary union.

AUTOMATIC STABILIZERS AT THE NATIONAL LEVEL

We can now turn to the analysis of automatic stabilizers by looking at the way this component behaves in the course of the business cycle (measured as the GDP-gap).⁷ Automatic stabilizers, as might be expected, are strongly countercyclical. Their cyclicity varies from a low of 0.3 (Greece) to a high of 0.65 (Germany), while in the US and the UK these coefficients are 0.29 and 0.39 respectively. Thus in the euro area a 1 per cent increase in the gap generates a budget surplus



FIGURE 3.3 GDP volatility and automatic stabilizers.

7. We are measuring automatic stabilizers as the difference between the actual and the cyclically adjusted budget balance.

of about 0.46 per cent, while in the US, the surplus goes up only by 0.29 per cent.⁸

Do automatic stabilizers stabilize the economy? In Figure 3.3, we have plotted the elasticity of the overall balance versus the volatility of GDP. The relationship is clearly negative – countries with more automatic stabilizers have less volatile cycles.

The opt-outs are very similar to the countries in the euro area – Sweden and Denmark have the same elasticity and volatility as the Netherlands, while the UK is close to Italy. Overall, neither in terms of cyclical, not in terms of stabilization, do we see much difference between the euro area and the three outsiders.

A LOOK AT NATIONAL DISCRETIONARY FISCAL POLICY

National governments are worried that in the absence of monetary policy they need to be more aggressive in the use of fiscal policy as a way to smooth the business cycle. This is even more relevant in the European context where mobility of labor is very limited. Has this happened? Or have the constraints on deficits and debt limited the flexibility available to discretionary fiscal policy?

We now analyze how discretionary fiscal policy has reacted to the business cycle.⁹ In other words, beyond the automatic stabilizers that we have described above, have governments used fiscal policy as a stabilizing tool?

Overall, we do not see strong evidence that fiscal policy has reacted aggressively to the business cycle.¹⁰ This could be an indication that governments have not engaged in a consistent manner. The evi-

8. The automatic stabilizers component that we are measuring is derived from the tax and spending elasticities used by the OECD. Given that there is no time variation in these elasticities, there is no point in measuring the time variation of automatic stabilizers.

9. Discretionary fiscal policy is captured by two measures: In the equation below the coefficient β represents the discretionary reaction of policy to the state of the business cycle, while the residual from this equation measures discretionary policy unrelated to the cycle. In this section we discuss the reaction of policy to the cycle. *Cyclically adjusted fiscal balance present year = constant + $\beta \times$ state of economy present year + $\lambda \times$ government debt preceding year + $\phi \times$ cyclically adjusted fiscal balance preceding year + residual*

10. For empirical estimates see Fatás and Mihov (2009). This is also documented in Galí and Perotti (2003) for an earlier period.

dence points towards procyclicality at the national level, more so in the euro countries.

If we look at the pre- and post-1999 periods, has policy changed? It is difficult to reach strong conclusions, given that we are talking about a small number of years, but there is a tendency for policy to become countercyclical, which is what we would have expected because of the absence of monetary policy. However, the change is small and it is not just happening in the euro countries. As an example, in the US, we see a much larger change towards countercyclical policy.

VOLATILITY

We now look at the volatility of discretionary fiscal policy measured as the standard deviation of changes in the fiscal policy stance which are *not* related to the state of the economy.¹¹

Most euro countries display low volatility of exogenous discretionary policy. We also see that this volatility has decreased in the second half of the sample (after 1999) for all countries with the exception of Austria, Ireland and Luxembourg. Some of the largest decreases are in euro countries.¹² France sees volatility going from a low 0.51 to 0.17, Germany from 0.71 to 0.49, and Italy from 1.41 to 0.41. The three outsider countries also see their volatility of fiscal policy go down, but they start from higher levels. Sweden goes from 3.0 to 1.1, and Denmark from 1.37 to 1.2; the UK from 1.85 to 0.9. Outside of the EU-15, only Canada and the US show substantial reduction in policy volatility. This is good news for monetary union. It says that national governments have not taken advantage of a common currency to implement changes in fiscal policy that are unrelated to economic conditions. In that sense this could be seen as an indication of the discipline provided by the Stability and Growth Pact. This decline in volatility of fiscal policy fits well with what is known as The Great Moderation debate. There is strong evidence that the volatility of business cycles has been reduced partly as a result of less volatile economic policy. Our results support this claim and suggest that the discipline of the monetary union fiscal framework has helped EU countries in achieving that moderation.

11. In other words, the standard deviation of the residuals when estimating the policy rule in footnote 9.

12. The estimates reported in this section are based on Fatás and Mihov (2009).

Fiscal policy coordination

In the previous sections we looked at the behavior of fiscal policy at the national level. Have we seen any change towards coordination of these policies? Is there anything like a euro fiscal policy? There are two reasons to look at coordination. First, as countries share a common currency, there could be interest rate effects of fiscal policies in other countries. Second, if we consider the stabilization of the euro area and adopt the perspective of the ECB, we need to investigate whether fiscal policy is helping or hurting the ability of the central bank to do its job.

COORDINATION OF NATIONAL FISCAL POLICIES

Although there is no government behind the behavior of the euro aggregate – it is simply the collection of individual policies – these individual policies have been designed within the institutional framework of the Maastricht Treaty and the Stability and Growth Pact, so the idea of euro-wide fiscal policy is not entirely meaningless. The framework has possibly introduced some commonalities across national fiscal policies. For example, the run up to the euro launch led to fiscal consolidation efforts for many of the governments. In addition, the interpretation and implementation of the Stability and Growth Pact has led to increasing emphasis on the coordination of national fiscal policies.

Should coordination of fiscal policies be an objective? While the ECB might be interested in seeing a common and countercyclical fiscal policy among the euro countries, we cannot forget that with a common monetary policy, fiscal policy should behave in an even less coordinated fashion as it needs to deal with idiosyncratic national shocks. So there is a natural tension between the need to deal with national business cycles and the desire of the European institutions to see a common economic policy.

Figure 3.4 plots the annual standard deviation of the structural budget balance across euro countries and compares it to the same measure for the non-euro countries.¹³ Since 1999, there is a clear trend towards less dispersion among the euro countries which is not evident for the rest of the countries. This trend can be the result of proactive

13. The non-euro countries are: Australia, Canada, Denmark, Japan, New Zealand, Sweden, Switzerland, the UK, and the US. Norway is excluded from this calculation because of the high volatility of the budget stemming from fluctuations in oil prices.

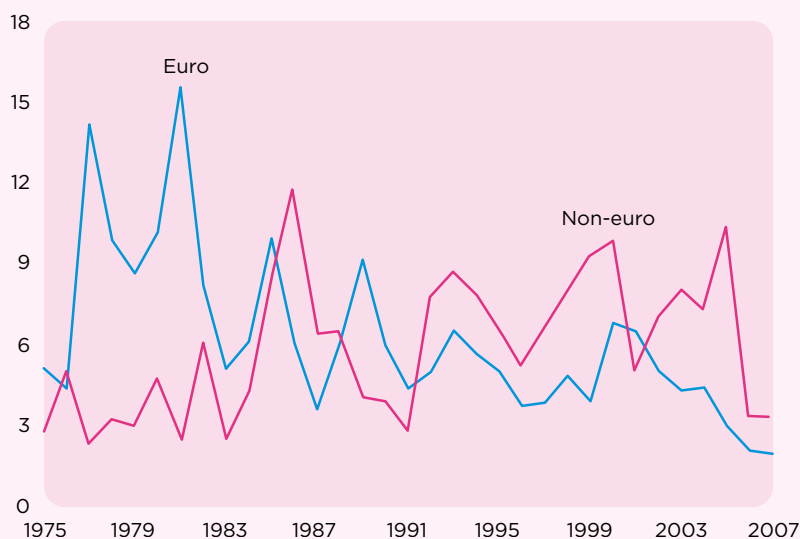


FIGURE 3.4 Dispersion of cyclically adjusted budget balances (standard deviation across countries in per cent).

coordination but it could also be the outcome of some countries being close to or above the limits established for budget deficits.

The trend towards more similar structural balances may also be a result of synchronization of business cycles. Indeed, Figure 3.5 shows that the dispersion of the GDP-gap has been declining steadily since the early 1990s.¹⁴ Interestingly, however, this trend is visible both for the euro area and for the group of the non-euro area countries. So the comparison of Figures 3.4 and 3.5 indicates that within the euro countries there is more to the synchronization of fiscal policy stances than just the synchronization of business cycles. This should not be a surprise, given the emphasis by the European Commission on the convergence of national fiscal policies.

THE EURO FISCAL POLICY STANCE

We have looked before at the cyclical stance of fiscal policy at the national level, but what about at the euro level? Has fiscal policy facilitated the task of the ECB? If we look at the way the structural budget

14. The GDP-gap is the difference between the actual GDP and its trend value at a given point in time.

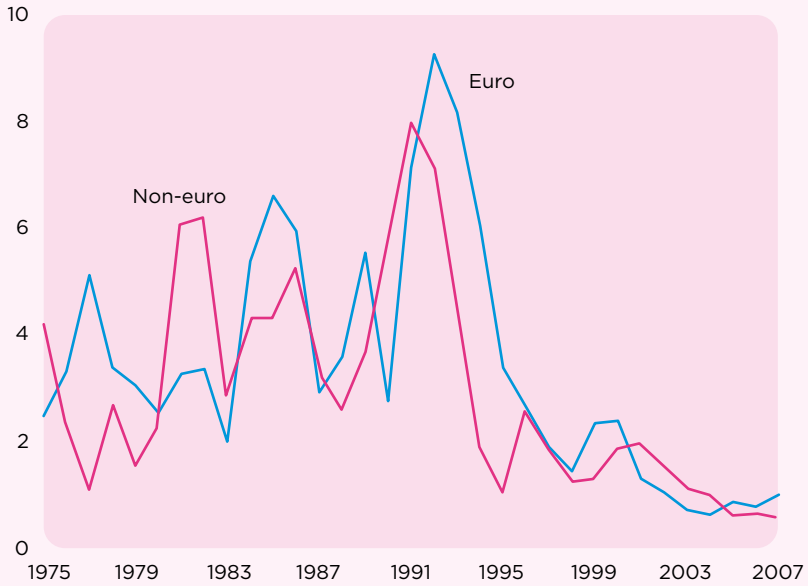


FIGURE 3.5 Dispersion of GDP-gaps (standard deviation across countries in per cent).

balance for the euro area has behaved over the business cycle, we observe that the discretionary component of fiscal policy behaves in a procyclical manner.¹⁵ In fact, the euro area fiscal policy is among the most procyclical policies of the countries we consider. In addition, the euro area is an exception as it is one of the few areas or countries where policy has remained as procyclical after 1999 as it was before.

To some it might seem surprising that the euro area fiscal stance is clearly procyclical, given that in recent years we have seen an improvement in the budget balance during a period (post-2003) where the economy displayed increasing growth rates. It might seem that these results contradict those in other papers that show a cyclical or even countercyclical fiscal policy for euro countries. It is important to emphasize that we are looking at the cyclicity of the *cyclically adjusted* budget balance, so we are ignoring automatic stabilizers.¹⁶

15. Fatás and Mihov (2009).

16. A regression of the primary balance on the output gap indicates countercyclicity of the fiscal policy stance in the euro area. If one includes real GDP growth instead of the gap, then countercyclicity becomes even more pronounced and statistically significant.

To understand better the strong procyclicality of fiscal policy in the euro area, we have plotted the change in the cyclically adjusted budget balance against the GDP-gap for the years between 2000 and 2007.¹⁷

Figure 3.6 plots these two variables for the euro area and Figure 3.7 does the same for the US.

The difference between the two plots is shocking. While for the US there is a clear positive correlation signaling strong countercyclical policy, for the euro area we see exactly the opposite, a strong negative correlation. The evolution of the euro fiscal stance is marked by decreasing balances after 2000, which reflect the relaxation of fiscal policy after the launch of the euro, a sign of fatigue after the strong pre-1998 decrease in deficits to qualify for membership of the monetary union. After the recession of 2002–2003 and despite the existence of a negative GDP-gap, there is an improvement in the structural balance which again represents procyclical policy. There are two reasons for this improvement: First, some of the euro countries were caught in levels of deficit that were too close to 3 per cent (or above 3 per cent)

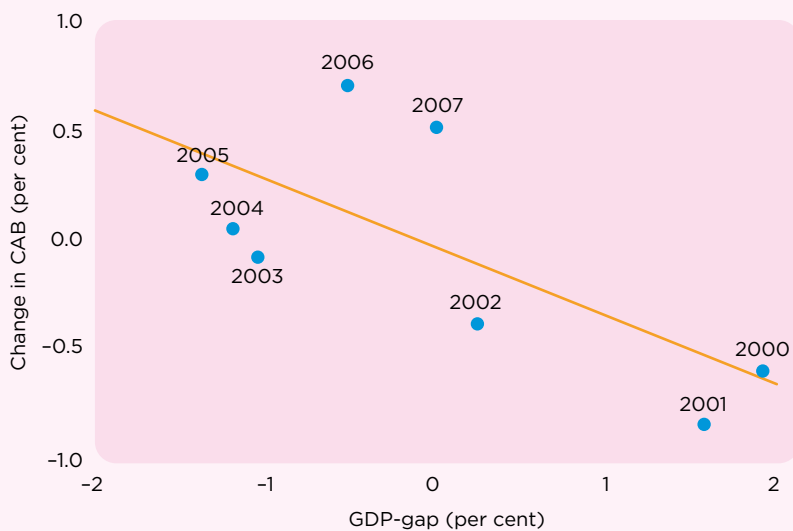


FIGURE 3.6 Fiscal policy stance and the GDP-gap.

17. It is quite common in the literature to look at this graphical representation of the fiscal policy stance (see *European Economy* 2008 or Alesina, Campante and Tabellini (2007)).

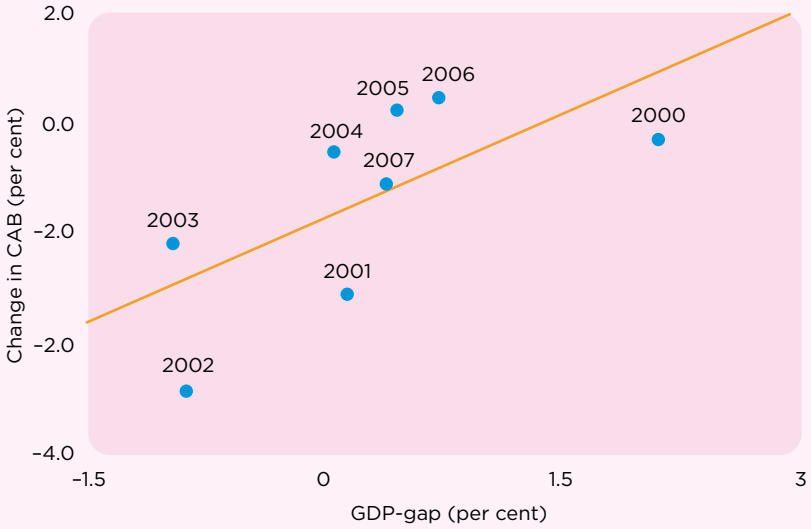


FIGURE 3.7 Fiscal policy stance and the GDP-gap.

and they had little room to adjust their fiscal policies. In addition, and this is especially true in 2005, tax revenues increased faster than many governments expected. One interpretation is that the tax elasticities were larger than normal. Some of this could be due to composition effects, such as an increase in profits as a share of GDP during these years.¹⁸ These increases in revenues and elasticities were assumed by governments to be permanent and led to increases in spending or decrease in taxes that in the years that followed (2006 and 2007) led to a structural balance that remained too low, despite the improvement in the cyclical condition of the economy.

This reading of the behavior of fiscal policy during these eight years reveals that some of it is due to special circumstances (such as the effects of the launch of the new currency), but it is also difficult to avoid a feeling that the fiscal policy framework did not work as expected, and it is likely that we will see similar behavior in the future.¹⁹

18. See European Economy (2008).

19. We need to be very careful interpreting some of these results because of the use of the GDP-gap and the possibility that it is not measured properly. If we use growth rates as an indicator of the cyclical position of the economy, the picture will not look that dramatic. For the US there is still clear countercyclicality in fiscal policy but for the euro area we see a positive slope, signaling acyclical or mildly countercyclical policy.

Concluding remarks

The European monetary union was launched ten years ago and over this period we have seen a debate about the successes and the failures of this unique experiment. The debate has been watched very carefully by the three countries that opted out of the single currency: Sweden, Denmark and the UK. In this paper we have reviewed the evidence on how fiscal policy has adapted to this new environment.

The debate on fiscal policy has been focused around the strict constraints defined by the Maastricht Treaty and the Stability and Growth Pact on deficits and debt. Their goal was to ensure the sustainability of public finances and to avoid the possibility of negative influences from fiscal policy on the conduct of monetary policy by the ECB. On the other side of the debate were those who argued that these constraints would limit the ability of fiscal policy to deal with national business cycles at a time when it was most needed. Now that we have seen ten years of data, what have we learned?

The evidence we present here suggests that the effects of the monetary union on fiscal policy have been fairly minor. The assessment of the performance of fiscal policy in the euro countries, relative to the three countries that opted out of the project, as well as other non-euro countries, shows that there is not much difference across these two groups. One notable exception is the US, where fiscal policy turned distinctly countercyclical after 1999.

From the point of view of long-term sustainability, the run-up to the euro launch had a clearly positive impact on debt levels, but once the euro was launched there is little evidence that the limits on deficits and debt have had any major impact on long-term sustainability. At the same time, this partial failure has not had any negative impact on the conduct of monetary policy, which raises questions about the strong focus on sustainability that the European institutions have maintained since the Maastricht Treaty.

When it comes to the cyclical behavior of fiscal policy, the good news is that European countries tend to have stronger automatic stabilizers built into their large governments and that these help to stabilize national business cycles. When we look at discretionary fiscal policy, we do not see a strong countercyclical behavior in most countries. Overall, euro countries have more procyclical policies than the other countries in the sample, but the policy seems to have become more countercyclical after the introduction of the euro, as would be ex-

pected. However, the change is small and does not appear in all euro countries, signaling that fiscal policy may not be taking over the stabilizing role that national monetary policy cannot play.

When we adopt the perspective of the ECB and look at the cyclical stance of the euro-wide fiscal policy, the results are puzzling; we observe a clear procyclical policy both before and after 1999, in contrast to the US where we see a policy that is clearly countercyclical.

Overall, our findings suggest that fiscal policy has not played a strong role during the first ten years of the euro. There has been considerable continuity in terms of less-than-ideal fiscal policies, characterized by difficulties in reducing debt levels and providing a clearly countercyclical stance to stabilize business cycles. Much of what we have seen is linked to national decisions, and some countries have followed better policies than others. In that sense, it would not be right to blame the monetary union for some of these policies. However, one cannot ignore that these results also provide a picture of a failing institutional framework for fiscal policy – one that has been focused on the concepts of sustainability and coordination without much success, at a time when it should have been focused on strengthening automatic stabilizers and designing a proper framework for the conduct of fiscal policy over the business cycle.

REFERENCES

- Alesina, Alberto, Filippo Campante and Guido Tabellini (2007), »Why is Fiscal Policy often Procyclical«, Unpublished manuscript.
- Blanchard, Olivier (1993), »Suggestions for a New Set of Fiscal Indicators«, in H.A.A. Verbon and F.A.A.M. van Winden (eds), *The New Political Economy of Government Debt*, Elsevier Science Publishers.
- Blanchard, O. and R. Perotti (2002), »An Empirical Characterization of the Dynamic Effects of Changes in Government Spending and Taxes on Output«, *Quarterly Journal of Economics*, Vol. LXVII.
- Burnside, C., M. Eichenbaum and J. Fisher (2004), »Assessing the Effects of Fiscal Shocks«, *Journal of Economic Theory*, vol. 115(1), 2004, pages 89–117.
- European Economy (2008), »Public Finances in Monetary Union – 2008«, European Commission.

- Fatás, Antonio and Ilian Mihov (2001a). »The Effect of Government Spending on Consumption and Employment: Theory and Evidence«, manuscript.
- Fatás, Antonio and Ilian Mihov (2001b). »Government Size and Automatic Stabilizers«, *Journal of International Economics*.
- Fatás, Antonio, and Ilian Mihov (2003), »The Case for Restricting Fiscal Policy Discretion«, *Quarterly Journal of Economics*, Vol. 118, Issue 3, November.
- Fatás, Antonio and Ilian Mihov (2009), »Fiscal Policy and the Euro«, in Alberto Alesina and Francesco Giavazzi (eds.) *The First Ten Years of the Euro*, NBER and University of Chicago Press.
- Galí, Jordi (1994), »Government Size and Macroeconomic Stability«, *European Economic Review*, 38.
- Galí, Jordi and Roberto Perotti (2003), »Fiscal Policy and Monetary Integration in Europe«, *Economic Policy*, Vol. 37, 2003, pp. 533–572.
- Girouard, Nathalie and Christophe André (2005), »Measuring Cyclically adjusted Budget Balances for OECD Countries«, *OECD Economics Department Working Papers* 434, OECD Economics Department.
- Kaminsky, Graciela, Carmen Reinhart and Carlos A. Vegh (2004), »When it Rains it Pours: Procyclical Capital Flows and Macroeconomic Policies«, NBER Working Paper, No 10 780.
- Lane, Philip R., (2003), »The Cyclical Behavior of Fiscal Policy: Evidence from the OECD«, *Journal of Public Economics*.
- Melitz, Jacques (2000), »Some Cross-Country Evidence About Fiscal Policy Behavior and Consequences for monetary union«, *European Economy* 2: 3–21.
- Mohr, M. and R. Morris (2007), »Uncertainty in Measuring the Underlying Budgetary Position and Fiscal Stance«, manuscript.
- Perry, G. (2002), »Can Fiscal Rules Help Reduce Macroeconomic Volatility in the Latin America and the Caribbean Region?«, *World Bank Policy Research Working Papers*, No. 3080.
- Statement of the Governing Council of the ECB, March 21 2005.
- Tornell, A. and P. Lane (1999), »The Voracity Effect«, *American Economic Review*, No. 89.
- Wyplosz, Charles (2005) »Fiscal Policy: Institutions Versus Rules«, *National Institute Economic Review* 191: 70–84, January.

FINANCIAL INTEGRATION

THE MONETARY UNION has opened up the possibility of a fully integrated European financial market comparable to that of the United States. By eliminating exchange rate risk, it has eliminated a crucial obstacle to financial integration. Before the monetary union, otherwise identical financial claims denominated in different euro-area currencies were imperfect substitutes and traded at different prices. The monetary union has eliminated this source of market segmentation.

Yet if a single currency is a necessary condition for the emergence of pan-European capital markets, it is not a sufficient one. Other frictions may still impede full integration: even after the removal of exchange rate risk, persistent differences in the regulations applying to financial intermediaries, tax treatment, standard contractual clauses and business conventions, issuance policy, security trading systems, settlement systems, availability of information, and judicial enforcement may still segment markets along national lines. In the process that preceded and accompanied the introduction of the euro, however, monetary unification also triggered a sequence of policy actions

and private sector responses that swept many of these other regulatory barriers aside. To what extent has this process of regulatory reform led to actual financial integration, with beneficial effects on financial development, investment and growth?

This chapter seeks to answer this question in the broader context of the burgeoning literature on the complex links between regulation, finance and real economic activity. To this purpose, we define financial integration and consider how to measure it, analyze the barriers to it and how their removal should affect financial markets, and economic growth. Next, we assess whether the euro area has actually become more integrated and conclude with some policy implications for the future of European financial markets.

Financial integration and financial development

Financial markets are integrated when the law of one price holds, i.e. when securities with identical cash flows command the same price. In other words, if a firm issues bonds in two countries or regions, it must pay the same interest rate to both sets of bondholders. Similarly, if it raises equity, it must pay the same for capital in both markets. This notion also extends to credit markets: when they are integrated, a firm or household should be able to borrow on the same terms irrespective of the location of its bank. This definition immediately implies that to measure the degree of financial integration of a region one needs to compare prices – or rates of return – for comparable securities issued in different areas within it.

BARRIERS TO FINANCIAL INTEGRATION

What can stand in the way of the law of one price? First, if two jurisdictions have different currencies, exchange rate fluctuations create additional risk, and investors will require a risk premium to hold a security denominated in a foreign currency. And even if there are no exchange rate fluctuations, transaction costs for currency conversion will induce a deviation from international arbitrage. A second barrier to integration stems from differential taxes and subsidies, which drive a wedge between the after-tax cost of capital in different countries.

Next, differences in regulation and enforcement can prevent financial intermediaries from competing across borders on equal footing. For instance, regulation can create stiffer entry barriers for foreign intermediaries; similarly, judicial efficiency can differ across countries, re-

quiring intermediaries to charge higher interest rates in inefficient jurisdictions to compensate for expected recovery costs in case of default.

Finally, entry barriers may arise not from regulatory constraints but from asymmetric information between potential foreign entrants and domestic incumbents. This is particularly relevant in credit markets, where the opacity of firms and households combines with local knowledge to give local lenders an informational advantage.

The introduction of the euro has eliminated exchange rate risk and the costs of exchange rate transactions within the euro zone, directly removing one of the main barriers to financial integration. In addition, the process leading to monetary unification triggered a sequence of policy actions and private sector responses that swept aside many other regulatory barriers to financial integration. For instance, controls on capital flows were removed, banking and financial service directives created a level playing field in the credit and securities markets, and the rules governing the issuance of public debt were harmonized.

By eliminating some barriers to financial integration, these policy actions boosted efficiency in the financial intermediaries and markets of the euro-area countries where the financial system was more backward and more heavily regulated. To the extent that greater efficiency stimulates the demand for funds and for financial services, this also fostered the growth of domestic financial markets or improved access to foreign markets and intermediaries.

THE EFFECT OF INTEGRATION ON FINANCIAL DEVELOPMENT

The main channel through which the removal of barriers to integration can spur domestic financial development is increased competition with more sophisticated or lower-cost foreign intermediaries. This competitive pressure drives down the cost of financial services for the firms and households of countries with less developed financial systems, and thus expands local financial markets. In some cases, the foreign entrants themselves may supply the additional financial services. Direct penetration by foreign banks and cross-border acquisitions of intermediaries are likely to erode local banks' rents. If mergers bring banks closer to their efficient scale, the process will also be associated with a decreasing cost of intermediation. Sharper competition, possibly coupled with cost cutting, translates into more abundant credit and/or lower interest rates.

A second channel is through harmonization in national regula-

tions (accounting standards, security laws, bank supervision, corporate governance), which the process of integration requires. To the extent that regulatory harmonization promotes convergence to the best international standards, it will also enhance domestic financial development and the entry of foreign financial intermediaries in more backward countries. On both accounts, therefore, the removal of barriers to financial integration can bring about an improvement in the supply of finance in less developed markets.

FINANCIAL INTEGRATION, INVESTMENT AND GROWTH

A natural question is whether financial integration has been a purely financial phenomenon or also has effects on investment and growth. To put it simply, is there a »growth dividend« from the euro? There are two channels through which financial market reforms (such as those spurred by integration) may affect growth:

(1) They may increase competition between intermediaries, as by removing entry barriers, or enhance the protection of creditors and shareholders, encouraging them to provide more abundant and cheaper finance. As a result, the costs of intermediation will fall and the savings channeled to investment will increase.

(2) Deeper and competitive financial markets can also contribute to growth by allocating capital more efficiently. First, by facilitating the trading, hedging and pooling of risks, a more highly developed financial sector allows investors to fund profitable but risky investment opportunities that would otherwise be forgone. Second, to the extent that more sophisticated intermediaries can distinguish good projects from bad, funds will go to the more profitable projects and the productivity of the economy will increase.

The thesis that finance matters for growth has been tested empirically in many studies, and it has been found that countries with better financial markets grow faster. Furthermore, the evidence is consistent with a causal relation running from financial development to growth. On the basis of this literature, one would expect that by promoting financial development in more backward countries, financial integration should also contribute to their growth and investment. Indeed, there is evidence that the euro boosted investment by financially constrained firms.¹

1. See Bris, Koskinen and Nilsson (2006), who compare data from the original eleven euro countries with a control group of five European countries that did not adopt the euro.

How integrated are European financial markets?

Financial integration in Europe has proceeded at different paces in different markets. The money markets and the public debt markets integrated almost immediately with the adoption of the single currency. In the equity, corporate bond and especially credit markets integration has instead proceeded more slowly and is currently still incomplete.

MONEY MARKETS

The most immediate impact of monetary union on financial integration has been felt in the euro-area money markets. Almost from the outset of the monetary union, interest rates on inter-bank deposits across the euro area converged fully to the benchmark Euribor rate. This is shown in the two graphs of Figure 4.1, where we plot the inter-bank rate from 1990 to 2007 in euro-area countries and in the three EU countries that have chosen not to join the monetary union (Denmark, Sweden and the UK). Before 1999, the highest spreads existed in Italy and Portugal. After the launch of the euro, the euro-zone inter-bank rates converged to the common Euribor rate (Greece joined monetary union in 2000 and is not reported). The interest rates of the three non-monetary union countries decreased after the launch of the euro, reflecting the fact that the euro rate has acted as a powerful attractor even for the inter-bank rates of countries that have not yet joined the monetary union. This is especially evident for Denmark and Sweden, while the UK's monetary policy has apparently remained more independent from that of the ECB.

BOND MARKETS

The combination of monetary union with the concomitant institutional changes also produced a dramatic convergence of the yields on national public debt on the eve of monetary unification. This is illustrated in Figure 4.2 for the 10-year benchmark bonds (and qualitatively similar patterns obtain for other maturities) from January 1993 to September 2007. The convergence is dramatic.

Most of the action came before the launch of the euro and derived from the convergence of the non-core monetary union participants: Finland, Ireland, Italy, Portugal and Spain, while Austria, Belgium, France and the Netherlands already featured low spreads over Ger-

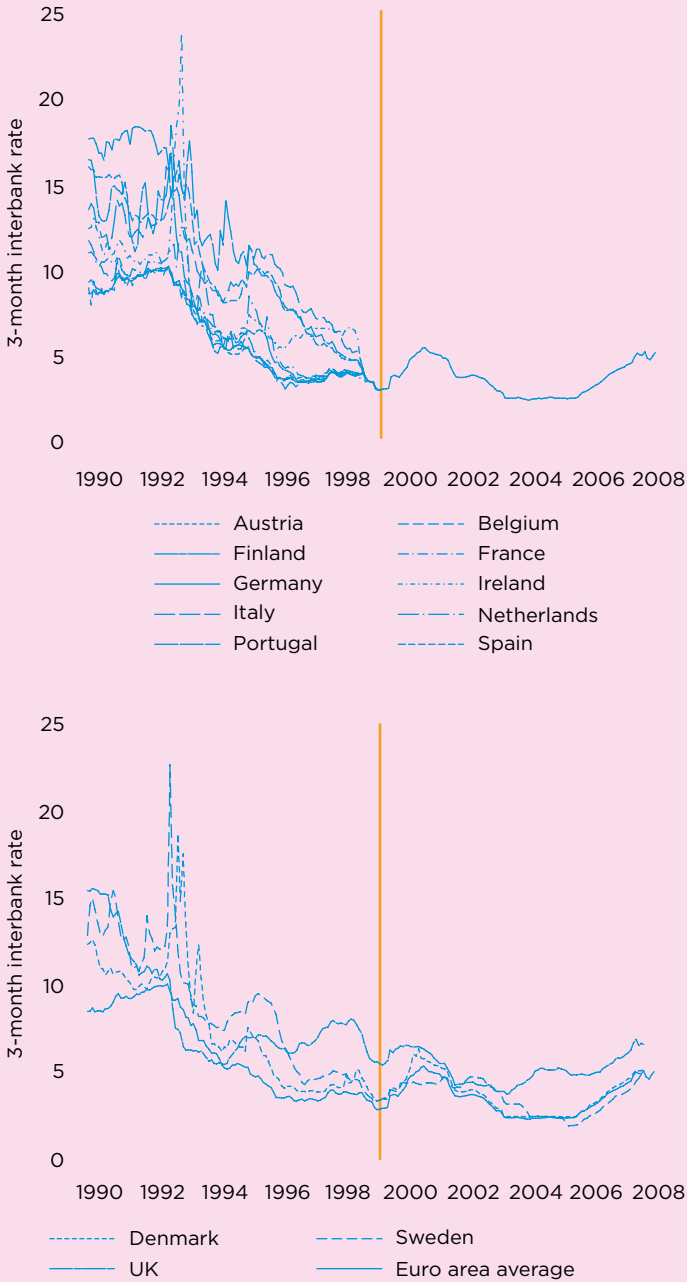
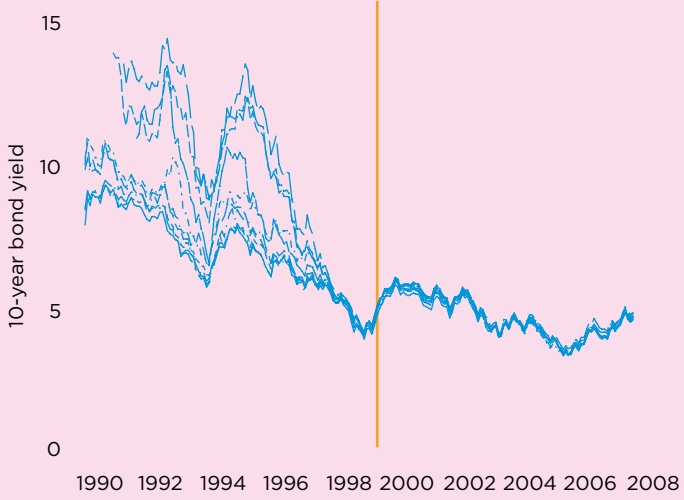
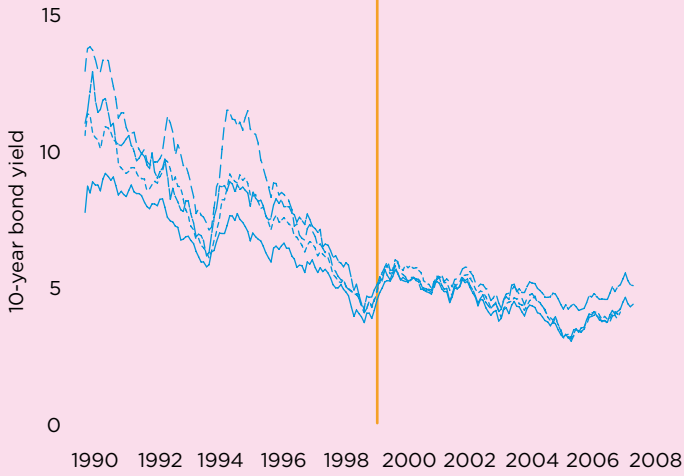


FIGURE 4.1 3-month interbank rates.

Source: Datastream.



- Austria
- Belgium
- Finland
- France
- Germany
- Ireland
- Italy
- Netherlands
- Portugal
- Spain



- Denmark
- Sweden
- UK
- Euro-zone average

FIGURE 4.2 10-year benchmark bond yields.

Source: Datastream.

man bonds in 1996. This is because before monetary union the probability of depreciation relative to the D-Mark was considerable in the first set of countries, but not in the second. For the non-core EU countries, the drastic narrowing of the 10-year yield spreads was due almost entirely to the elimination of this risk. In Sweden and Denmark yields converged to the euro-area average, while in the UK they generally remained higher.

The analysis of corporate bonds shows that also this market has achieved a remarkable degree of integration.² The introduction of the euro promoted soaring corporate bond issuance in 1999, when volumes more than doubled, from \$273 billion to \$657 billion. That the development of an active euro-denominated corporate bond market is the true success story of monetary union is confirmed by the great liquidity of the market. Euro-area corporate bonds have narrower bid/ask spreads than comparable sterling- and dollar-denominated bonds.³

STOCK MARKETS

Assessing whether European stock markets have become more integrated since the introduction of the euro is more difficult than for bond markets. The most common approach posits that when segmented markets start to integrate, stock market returns, like interest rates, should become more closely correlated. The evidence does show that European stock returns have increasingly been driven by common European shocks since the early 1980s, but these changes in the covariance of ex-post returns do not necessarily reflect integration.⁴ Market returns may exhibit common patterns simply because markets are increasingly hit by the same shocks (oil prices, say, or monetary policy). This point is particularly relevant for the EU, where the integration of goods and labor markets is likely to have increased the common component of real shocks across countries, and where by definition monetary policy has now become common.

Other tests of stock market integration rely on quantity indicators, such as the composition of financial portfolios. There is abundant evidence for the »home equity bias«, i.e. investors' failure to diversify sufficiently into foreign stocks. But the home bias of euro-area investment and pension funds decreased after the introduction of the euro.⁵

2. See Baele et al. (2004).

3. See Biais et al. (2006).

4. See Baele (2005).

5. See Adam et al. (2002) and Baele et al. (2004).

Thus for equity markets too there is some evidence of increasing integration. However, significant institutional barriers to integration remain, notably the considerable costs for cross-border trades arising from the fragmentation of the clearing and settlement system – a point to which we shall return.

CREDIT MARKETS

Credit markets have integrated much more slowly than bond markets, presumably because of the heterogeneity of borrowers and the local nature of the information that lenders need. As a consequence, interest rate differentials remain wider than in the bond market.⁶ In particular, there are persistent differentials in the medium- and long-term corporate loan market, in the consumer credit segment and in the mortgage market. This is exemplified in Figure 4.3, which plots the mortgage market rate from 1996 to 2005; there is less convergence than in the 10-year government bond rate, in both euro and non-euro countries. This may reflect either persistent barriers to financial integration in this market, or different risk composition of the national pools of borrowers.

Meanwhile the initial wave of consolidation in the euro-area banking sector occurred almost exclusively within national borders. Indeed, there were more examples of cross-sector consolidation than cross-border consolidation, as several bancassurance groups came into existence. Accordingly, concentration ratios within the domestic banking systems of euro-area member countries have slightly increased over recent years. A recent report by the European Commission cites three factors that explain the preference for domestic consolidation among euro-area banks.⁷ First, barriers relating to regulation, taxation and labor laws made cross-border consolidation more difficult. Second, banks wanted to acquire sufficient size at the domestic level before venturing into acquisitions in other euro-area countries. Finally, there may have been tacit support among national authorities for the idea of creating national champions, as a means to limit the possibility that substantial parts of their domestic banking systems could become foreign-owned. The cumulative effect of these factors was to limit consolidation among euro-area banks.

6. See Adam et al. (2002) and Baele et al. (2004).

7. European Commission (2008).

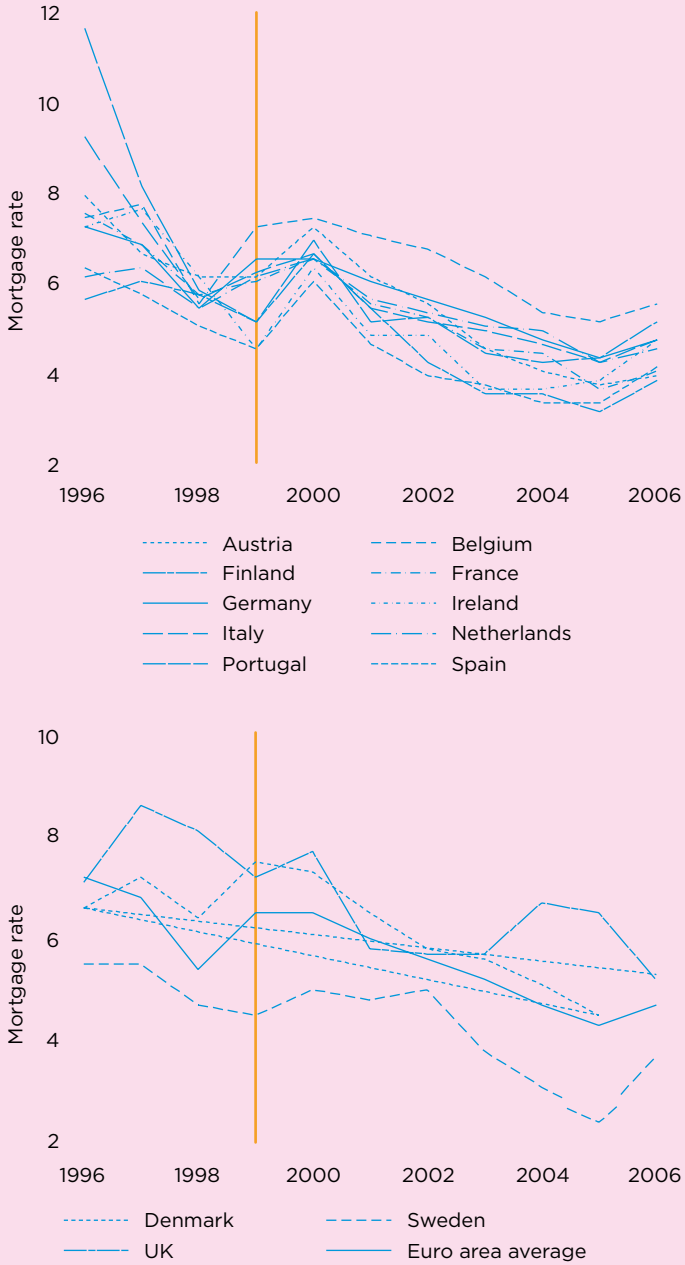


FIGURE 4.3 Mortgage rates.

Source: *Hypostat*, European Mortgage Federation, various issues.

But in recent years credit market integration is gaining momentum, as cross-border banking mergers and acquisitions have become more common: among the more notable examples is the acquisition of HypoVereinsbank in Germany by the Italian Unicredit Group, and the acquisition of the Netherlands-based ABN AMRO by a consortium of the UK-based Royal Bank of Scotland, Banco Santander and Belgian-based Fortis Bank in 2007. Many more have taken place since, partly as a result of the financial crisis.

Prospects for securities market integration

Although financial integration has proceeded at a remarkably rapid pace within Europe in the past two decades, integration is far from complete. So it is natural to ask whether the process should be expected to continue spontaneously and smoothly, or whether further regulatory intervention is required (1) to remove remaining obstacles and (2) to cope with some of the undesired effects of financial integration. In other words, can financial integration be safely entrusted to market participants alone from now onwards? Arguably, the answer will differ depending on which market is involved, in keeping with the uneven pace of integration in security markets and bank lending.

The four main remaining obstacles to the integration of euro-area securities markets are (1) the segmentation of the clearing and settlement system, (2) the fragmentation of the trading infrastructure among too many stock exchanges; (3) the fragmented issuance of government bond markets, and (4) the poor post-trade transparency in corporate bond markets.

CLEARING AND SETTLEMENT

The segmentation of the clearing and settlement system entails improperly high costs for cross-border trades. Segmentation depends partly on the persistent fragmentation of stock trading platforms. Some exchanges, such as Deutsche Börse, in fact, are vertically integrated, with both a platform to provide trading services and a proprietary clearing and settlement system for the corresponding post-trading services («silo structure»). This limits the competition from other trading platforms, since new entrants' customers would still have to use the incumbent's post-trade clearing and settlement system.

Entry foreclosure generates rents for incumbent exchanges, and overcoming this problem is likely to require regulatory action at the

EU level. This is recognized both by the EU Commission and by the ECB, which announced in July 2006 that it was considering the desirability of going into the settlement business itself, with a system called »Target 2 Securities« (T2S). The ECB would not be the first public institution to provide central clearing and settlement services. In the US, the Federal Reserve Board runs a bond settlement business, and both clearing and settlement are the product of the Depository Trust and Clearing Corporation, a user-owned service company that was created as a direct result of government pressure.

STOCK TRADING INFRASTRUCTURE

Unlike clearing and settlement, the trading infrastructure of European stock markets – once organized on a national basis – is already being restructured along transnational lines at the initiative of exchanges and financial intermediaries, although fragmentation is not necessarily being reduced. For one thing, existing exchanges have pushed for consolidation: the Paris, Amsterdam, Brussels and Lisbon stock exchanges merged into Euronext; Stockholm's OMX AB has acquired and now operates exchanges in Sweden, Finland, Denmark, Iceland, Estonia, Lithuania and Latvia; and in 2007 the London Stock Exchange acquired Borsa Italiana. Meanwhile, the EU's Markets in Financial Instruments Directive (MiFID) has opened the door to the creation of new trading platforms operated by intermediaries, and a consortium of seven top investment banks has already launched a new pan-European equities trading platform. So, as existing platforms are consolidated, new ones are being instituted; in both cases the tendency is towards pan-European, not national trading platforms.

GOVERNMENT BOND ISSUANCE

There is room for further progress towards integration in euro-area government bond markets as well. In the MTS platform for euro-area bonds, trading costs (median effective bid/ask spreads) are significantly higher than in the US Treasury market. This persistent liquidity gap is due to greater fragmentation, with many issuers and smaller issue size than in the US.⁸ To overcome fragmentation, euro-area governments should tackle the politically thorny problem of joint debt issuance, which may create conflicts with independent national fiscal authorities. Some progress might be made by limiting joint issu-

8. See Dunne, Moore and Portes (2006).

ance to just a few maturities, at least initially, so as to test the potential magnitude of the liquidity gains and debt servicing savings from joint bond issuance.

TRANSPARENCY IN THE CORPORATE BOND MARKET

As in the US, the euro-area corporate bond markets are mainly organized as an OTC dealer market, where trading is decentralized and dealers satisfy customers' sell and buy orders at their bid and ask quotes. Although electronic trading platforms are now starting to emerge, most orders are still routed to brokers and dealers by telephone. For investors, in such a decentralized market information on prices of the trades effected becomes an essential sign of »where the market is going« and guide to trading strategy. In the absence of such »post-trade transparency«, investors hesitate to place orders, and the new information about fundamentals that their orders could convey is embodied in prices much more slowly.

Currently there is no systematic post-trade transparency in the European corporate bond market, especially for retail investors and small institutions.⁹ As a result, price discovery is very slow: it often takes more than a day for the information content of a trade to be fully reflected in market prices. Some increase in post-trade transparency is likely to speed up the price discovery process and to increase the liquidity of the market.¹⁰

Prospects for credit market integration

That the credit market has been the laggard in the process of European financial integration is probably due to the intrinsic nature of lending, which depends on local and customer-specific information and on the enforceability of contracts in national jurisdictions. These obstacles to the entry of foreign lenders and to cross-border credit will not disappear soon, even though the lack of information about local customers can be attenuated by foreign banks taking over local banks and making them subsidiaries – a process that is now getting under way. However, some changes in regulation and enforcement may help to dismantle the remaining national barriers to entry in the

9. See Biais et al. (2006).

10. See Biais et al. (2006).

EU credit market and to reduce the risks of cross-border integration. Credit market integration would benefit from further EU regulatory intervention on at least four distinct fronts.

LOAN CONTRACT ENFORCEMENT

A burgeoning literature suggests that speedy and effective contract enforcement is essential to the development of the credit market, since the efficiency and honesty of the judiciary determines the real degree of creditor protection and that there is a positive cross-country correlation between the ratio of private debt to GDP and the »rule of law«. Recent studies have demonstrated that there are dramatic cross-country differences in enforcement efficiency – even within the euro area.¹¹

Differences in the length and cost of enforcement are a barrier to credit access for firms in the most inefficient jurisdictions. Of course, bringing judicial enforcement in the more backward jurisdictions up to the best EU standards is a huge task for national legislators. The magnitude of the problem goes far beyond credit market integration, and its solution is not something that we can expect to happen swiftly.

INFORMATION SHARING SYSTEMS

Recent research has shown that information sharing arrangements or »credit reporting« systems between banks play an important role in credit markets. Recent literature shows that bank lending to the private sector is greater and default rates are lower where information sharing is broader and more solidly established, and that the ratio of private sector credit to GDP is positively correlated with information sharing.¹²

For credit markets to integrate cross-border, information on loan applicants must become available on a comparable basis to banks in different countries. Unless data on would-be borrowers' characteristics, repayment record and current debt exposure are available to potential foreign just as they are to domestic lenders, the national credit markets of the euro area will not be integrated. Consolidation of customer debt records on a supranational basis is also necessary for banks to be able to estimate default risk accurately and so lend safely, in a situation where cross-border lending may become increasingly common.

11. See Djankov, La Porta and Lopez-de-Silanes (2003).

12. Jappelli and Pagano (2002) and Djankov, McLiesh and Shleifer (2007).

Unfortunately, the information-sharing arrangements in the euro area are still predominantly national. Today's credit registers and credit bureaus were created to serve domestic banks (and sometimes at these banks' own initiative) and reflect a range of national regulations and privacy laws. On this front, concerted action by the agencies that manage public credit registries in Europe to harmonize and interlink their databases could produce substantial benefits for credit market integration.

DEPOSIT GUARANTEE SCHEMES

Another often overlooked difference in EU national regulations that heightens the segmentation of banking markets involves deposit guarantee schemes.¹³ The problem does not involve cross-border retail deposits, which are still small-scale, but banks that compete cross-border, though subject to differing rules on deposit insurance.

Deposit insurance differs from country to country both in coverage and in funding. Since larger depositors are more likely to be sophisticated and able to exert some market discipline on banks, the high-coverage countries may give banks lower incentives to protect their depositors. Deposit insurance schemes also differ in funding structure. Some are prefunded (the amounts due in case of a bank failure are prepaid into a fund), while others are funded *ex post*, once a bank actually fails; still others combine the two mechanisms. Moreover, in the prefunded schemes the premium structure also differs: some use flat rates in proportion to deposits, others make rates contingent on measures of bank risk.

Due to the implied differences across the EU in »coverage ratios« (the available funds divided by the volume of deposits covered), deposit insurance generates different incentives and costs for banks in different countries and can thus affect competition. A certain degree of convergence between deposit insurance schemes would also help to deal with threats to the stability of the European banking system. This leads us to the fourth – and certainly the most important – concern for financial regulators in Europe today, namely prudential supervision.

13. On this important point we draw largely on the insightful remarks of Trichet (2008).

PRUDENTIAL REGULATION AND BANKING SUPERVISION

Securing the stability of the European banking system is the key to reaping the benefits of financial integration while avoiding such unwelcome effects as the risk of financial contagion. The financial crisis has vividly highlighted the shortcomings of the current fragmented EU banking supervisory system. »Even with signs of a clear risk of contagion, no common analysis of the situation, no sharing of confidential information, no coordinated communication and no emergency meetings appear to have taken place among EU supervisors. Even the ECB, unlike the Federal Reserve, lacked the information on the soundness of counterparties normally available to national central banks.«¹⁴ Luckily, so far no major EU-based banking groups with substantial cross-border operations have been severely affected by the market turmoil, but this is obviously no excuse to neglect preparations for such a contingency.

The problem is that despite the emergence of a few pan-European banks, prudential regulation and supervision are still mainly organized along national lines, which entails considerable risk for the stability of the credit market. For instance, if a pan-European bank were to have solvency problems at home or at one of its foreign subsidiaries, the rules for crisis management and burden-sharing are unclear. Uncoordinated actions by the various national supervisory agencies could actually exacerbate the crisis, when instead swift, coordinated action would be essential.

Admittedly, major regulatory progress has been made. The EU Commission has largely harmonized financial regulations with the Financial Services Action Plan of 1999, and in 2004 it established a common advisory body grouping all European banking supervisory agencies, the Committee of European Banking Supervisors (CEBS). These agencies have reached a whole series of bilateral »memorandums of understanding« to strengthen coordination in the event of banking crises involving joint responsibilities. However, the EU prudential regulation is still removed from the uniform framework and enforcement structure that would be needed to reduce the likelihood of crises involving pan-European banks and mitigate their effects.

14. See Padoa-Schioppa (2007).

Summary

This chapter provides an account of how the process of financial integration has promoted financial development after the inception of monetary union. It starts by defining financial integration and how to measure it, analyzes the barriers that can prevent it and the effects of their removal on financial markets, investment and growth, and assesses whether the euro area has actually become more integrated. The chapter also highlights further steps that are required to consolidate financial integration and enhance the future stability of financial markets.

REFERENCES

- Adam, Klaus, Tullio Jappelli, Annamaria Menichini, Mario Padula and Marco Pagano (2002), »Analyze, Compare, and Apply Alternative Indicators and Monitoring Methodologies to Measure the Evolution of Capital Market Integration in the European Union«, Report to the European Commission, Directorate General for Internal Affairs, January, http://ec.europa.eu/internal_market/economic-reports/index_en.htm
- Baele, Lieven (2005), »Volatility Spillover Effects in European Equity Markets«, *Journal of Financial and Quantitative Analysis* 40(2), 373-401.
- Baele, Lieven, Annalisa Ferrando, Peter Hördhal, Elizaveta Krylova and Cyril Monnet (2004), »Measuring Financial Integration in the Euro Area«, ECB *Occasional Paper Series* No. 14.
- Biais, Bruno, Fany Declerck, James Dow, Richard Portes and Ernst-Ludwig von Thadden (2006), *European Corporate Bond Markets: Transparency, Liquidity, Efficiency*, CEPR Report, May.
- Bris, Arturo, Yrjö Koskinen and Mattias Nilsson (2006), »The real effects of the Euro: evidence from corporate investments«, *Review of Finance* 10(1), 1-37.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer (2003), »Courts«, *Quarterly Journal of Economics* 118(2), 453-517.
- Djankov, Simeon, Caralee McLiesh and Andrei Shleifer (2007), »Private Credit in 129 Countries«, *Journal of Financial Economics* 84(2), 299-329.

- Dunne, Peter, Michael Moore and Richard Portes (2006), *European Government Bond Markets: Transparency, Liquidity, Efficiency*, CEPR Report, May.
- European Commission (2008), EMU@10. Successes and Challenges after 10 Years of Economic and Monetary Union, *European Economy* 2.
- Jappelli, Tullio, and Marco Pagano (2002), »Information Sharing, Lending and Defaults: Cross-Country Evidence«, *Journal of Banking and Finance* 26(10), 2017-45.
- Padoa-Schioppa, Tommaso (2007), »Europe Needs a Single Financial Rulebook«, *Financial Times*, 11 December, 13.
- Pagano, Marco and Ernst-Ludwig von Thadden (2004), »The European Bond Markets under monetary union«, *Oxford Review of Economic Policy* 20(4), 531-554.
- Stulz, René (1999), »Globalization of Equity Markets and the Cost of Capital«, *Journal of Applied Corporate Finance* 12(3), Fall, 8-25.
- Trichet, Jean-Claude (2008), »Keynote speech at the Second Symposium of the ECB-CFS research network on 'Capital Markets and Financial Integration in Europe'«, 13 February, Frankfurt am Main, http://www.ecb.int/press/key/date/2008/html/sp080213_2.en.html

TRADE AND INVESTMENT

MOST STUDIES OF euro effects on trade indicate that the euro has caused a significant and economically substantial increase of trade within the euro area and also – albeit to a lesser extent – between the euro area and outside countries. In contrast, studies of euro effects on foreign direct investment do not yield as clear results. Some indicate substantial and positive effects, others reveal no effects within the euro area. The euro seems, however, to have caused an increase in the inflow of investments.

It was by no means obvious before 1999 that the common currency would have substantial positive effects on trade. Currency barriers to trade seem insignificant, and trade seems to be little affected by exchange rate fluctuations. We will review the evidence of euro effects. In addition we estimate the extent to which trade for Sweden, Denmark and the UK would increase, were they to join the currency union.

What are the currency-related barriers to trade and investment?

In what way do different national currencies constitute a barrier to trade and investment? The most obvious barrier is the cost of currency exchange, but this cost is relatively small. For example, the current spread between the banks' commercial buy and sell spot rates as between the euro and the Swedish krona is 0.3 percent. Most exporters and importers will accept the additional cost of insuring against changes in exchange rates until payment is due. The current spread between buy and sell rates on the forward market between the euro and the Swedish krona is 0.4–0.5 percent. The social cost saved by eliminating the need to exchange and hedge currencies is approximately equal to the spread as a percentage of the transaction value. Further, for exporters and importers there are internal costs for dealing with different currencies. The total cost of exchanging, hedging and handling different currencies should not exceed one percent of the value of exports and imports.¹

Most practitioners will claim that it is not these relatively small, tangible costs that constitute the main barrier to international trade and investment. Rather, it is the uncertainty that currency fluctuations engender. It is possible to hedge against these, but normally only for a maximum of one year.² Trends that persist for more than a year will eventually affect revenues and costs and, consequently, the profitability of trade and investment. Uncertainty in exchange rates will therefore represent an important cost element in any decision to start exporting, importing or investing in a foreign country.

What the data implies without statistical analysis

Before considering the evidence of the euro's impact on trade, it could be useful to look at the picture that the data paints without there having been any statistical analysis. The blue line in Figure 5.1 shows the development in trade between the original eleven members of the monetary union before and after its start in 1999 *relative* to trade

1. The Swedish government commission on the EMU (Calmfors et al., 1997) estimated the total cost to be approximately 0.2 per cent of GDP.

2. Hedging for longer periods is possible, but much more costly.

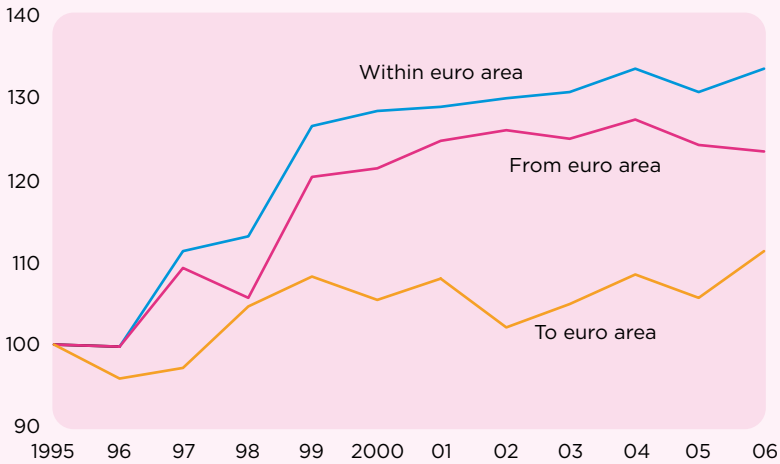


FIGURE 5.1 Trade relative to a control group.

Source: Flam and Nordström (2007).

between a group of ten outside countries. The volume of the intra-monetary-union trade is indexed at 100 in 1995 and is an unweighted average of 90 bilateral, unidirectional trade flows.³ The control group consists of the three EU members that were still outside at the time and seven other OECD countries in Europe and the rest of the world.⁴ As we can see, there is a marked upward jump in trade around 1999, followed by a more or less steady increase.

The red and yellow lines in the figure show the development of bilateral unidirectional trade between members of the currency union and outside countries relative to trade between the countries in the

3. Eleven countries yield $11 \cdot 10 = 110$ trade flows. However, Belgium and Luxembourg were treated as one country in the trade statistics until 1999 and we are therefore forced to do the same for the whole period under investigation. Therefore, we only have $10 \cdot 9 = 90$ trade flows within the currency union. We could also use a trade-weighted average, but have chosen an unweighted average, since unidirectional trade flows are given the same weight in the statistical analysis. The statistical analysis usually answers the question: by how much has the common currency caused trade to increase between the average pair of countries in the currency union? Statistical analysis using weighted observations would answer the question: by how much has total trade increased within the currency union due to the common currency?

4. The three EU members are Denmark, Sweden and the UK, and the seven other OECD countries are Norway, Switzerland, Canada, the US, Japan, Australia and New Zealand.

control group. The red line shows exports from member to outside countries and the yellow line shows exports in the opposite direction. Each line is an unweighted average of 100 bilateral, unidirectional trade flows.⁵ We can see that the relative exports from member to outside countries exhibit a pattern around 1999, similar to that for trade within the currency union. Relative exports from outside to member countries, however, are more or less flat during the whole period, which means that they grew at about the same rate as trade between outside countries.

It is tempting to conclude from the data in Figure 5.1 that the introduction of the euro in 1999 caused a substantial increase in trade between members of the currency union as well as in exports from member to outside countries. We cannot be certain, however. The trade data are a product of many other factors apart from the common currency, such as GDP fluctuations, exchange rate movements, implementation of the Inner Market and the Uruguay Round tariff reductions. To ascribe the impact of the common currency, its effect must be isolated from other effects. This is what statistical analysis attempts to do. The importance of this point is illustrated by the fact that the statistical analysis in fact shows that the euro has caused increased exports from outside countries to the euro area, contrary to what is indicated by the yellow line in Figure 5.1.

Figure 5.2 shows the development of foreign direct investment before and after 1999 in analogy with the development of trade in Figure 5.1.⁶

The impression left by Figure 5.2 is that foreign direct investment was unaffected by the start-up of the currency union in 1999. There is no clear trend in any of the three categories, namely of bilateral,

5. The number of trade flows between members and outside countries in each direction is $10 \cdot 10 = 100$.

6. Data on foreign direct investment is much less reliable than data on foreign trade. It seems that much foreign direct investment goes unreported. The data comes both in the form of flows showing the value of foreign direct investment per year, and of stocks showing the value of accumulated foreign direct investment after depreciation. Both flow and stock data are reported by the country making the investment and the country receiving it. However, big discrepancies between data reported by the sending and the receiving countries are the rule rather than the exception. There is reason to believe that countries are better at keeping track of incoming than of outgoing investments. Figure 5.2 is based on stock data reported by receiving countries.

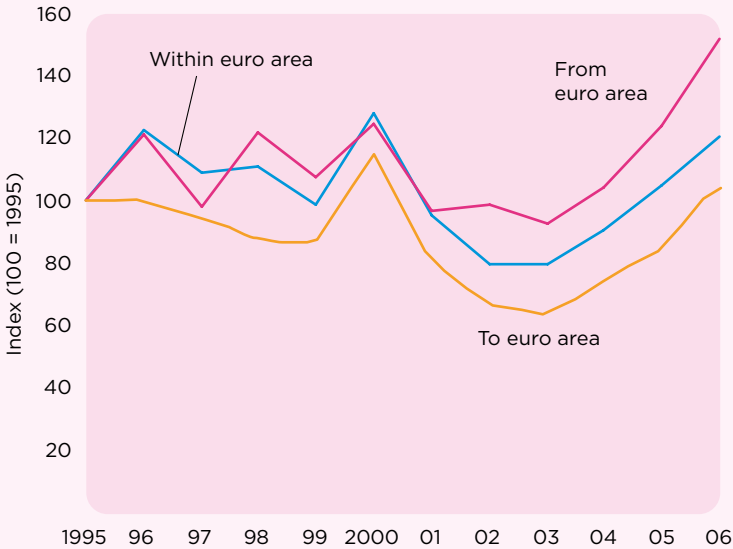


FIGURE 5.2 FDI relative to a control group.

unidirectional foreign direct investment. Here, unlike in the case of trade, it is clear that we have to turn to statistical analysis to reveal any impact from the euro.

The method for uncovering the effects of the euro on trade

Almost all studies of the impact of the euro on trade use the same theoretical model and statistical procedure for isolating this impact from other factors that are known to affect international trade and for estimating its size.⁷ The statistical procedure is the same as for clinical trials of medical treatment. The group of countries that have adopted the euro can be likened to a group of patients who have been treated with a new drug. They are compared to a group of countries that have retained their national currencies, i.e. have not received the particular kind of treatment that a common currency represents. In

7. The theoretical model is a variant of the so-called gravity model of international trade as derived by Anderson and van Wincoop (2003). The gravity model is consistent with standard models of international trade, namely the Ricardian, Heckscher-Ohlin and Heckscher-Ohlin-Chamberlin models.

clinical trials, the selection of treated individuals and individuals in the control group can be made randomly and in sufficient numbers to ensure that there are no initial differences in group characteristics. Naturally, this is not possible in the case of »euro treatment«; there are economic and political reasons why some countries joined the currency union in 1999 and some chose to stay outside it (and also why some countries have chosen not to be part of the European Union and therefore are ineligible for participation in the currency union). The non-random selection of countries for participation and non-participation is a problem when it comes to estimating the effects of the euro on international trade and investment. In principle, it is possible that those countries whose mutual trade and investment were on the increase were just those who chose to participate in the currency union. In other words, there is a risk that causality goes from trade and investment to currency union participation, rather than the other way round.

The procedure is to select a control group of countries, usually fairly rich OECD countries, and one time period before and one after 1999. Changes in trade that are caused by factors other than the euro are removed from the trade data. Such factors include GDP, real exchange rates and tariffs. Differences in the level of trade between each country pair that depend on factors that are thought to be constant over time, such as geographical distance and cultural similarity, are also removed. The differences in the level of trade before and after 1999 are calculated for trade within the euro area and for trade between countries in the control group. The difference between these two differences is then calculated. This difference-in-differences is assumed to depend on the different effect of the euro on trade within the euro area and trade between the countries outside. If the difference-in-differences is sufficiently large statistically speaking, we assume that we have found the euro effect and identified its size. Using the same procedure, some studies have also estimated euro effects on trade between euro and non-euro countries as against trade between non-euro countries. There is reason to expect that the euro would have a negative effect on trade between euro and non-euro countries, and that the removal of a trade barrier between some countries would increase the trade between them at the expense of their trade with outsiders.

Euro effects on trade: what the studies say

Table 5.1 provides a list of known studies of euro effects on trade and their main results.

Most studies find positive and substantial euro effects. Somewhat surprisingly, most also find positive and substantial euro effects – albeit not as large – on trade between euro and non-euro countries.

Three of the studies in Table 5.1 question the findings regarding positive effects.⁸ They show that there is a long-term trend for increasing trade between the euro countries, and they claim to show that when this trend is accounted for in the statistical analysis, little or nothing remains of the euro effect. They argue that what is interpreted as a euro effect in most of the studies is a trend that is due to factors other than the euro.

The fact that such a trend does exist makes it difficult to separate it from the euro effect in the statistical analysis. The trend may include

TABLE 5.1 The euro effects on trade: Overview of research results.

Author(s)	Period
Baldwin, R., F. Skuderlmy and D. Taglioni (2006)*	1991–2002
Baldwin, R. et. al. (2008)	1990–2006
Barr, D., F. Breedon and D. Miles (2003)	1978–2002
Berger, H. and V. Nitsch (2008)	1948–2003
Brouwer, J., R. Paap and J.-M. Viaene (2007)	1990–2004
Bun, M. and F. Klaassen (2007)	1967–2002
Chintrakarn, P. (2008)	1994–2002
De Nardis, S. and C. Vicarelli (2003)	1980–2000
Faruqee, H. (2004)	1992–2002
Flam, H. and H. Nordström (2003)	1989–2002
Flam, H. and H. Nordström (2007)	1995–2006
Frankel, J. (2008)	1948–2006
Gomes, T., C. Graham, J. Helliwell, T. Kano, J. Murrey and L. Schembri (2006)	1980–2003
Micco, A., E. Stein and G. Ordoñez (2003)	1992–2002

* Based on industry level observations

8. Bun and Klaassen (2007), Berger and Nitsch (2008) and Gomes et al. (2006).

the euro effect or the euro effect may include the trend. One way of overcoming this inherent difficulty is to estimate the trend over a long period – several decades – and then to let the trend explain the change in trade before and after 1999. This approach is used by one of the studies and it eliminates most of the euro effect on trade.⁹ However, doing so has its own inherent difficulty. The long-term trend for higher-than-average growth in trade between the initial members of the currency union is likely to depend to some degree on policy measures adopted by the European Union, such as eliminating tariffs in the 1960s and creating the Inner Market in the late 1980s and 1990s. Introducing this trend into the period used to estimate the euro effect may mean that what is really a euro effect is mistakenly identified as a trend which, in turn, is caused by earlier policy measures to strengthen European economic integration. Examples could be tariff reductions in the 1960s and 1970s and the creation of the Inner Market in the 1980s and 1990s.

Method	Results	
	Within euro area	Between euro and non-euro area
Cross-section	26–83 %	22–24 %
Panel	2%	0–1%
Panel	29%	[not estimated]
Panel	0%	[not estimated]
Panel	0–15 %	Mixed results
Panel	3%	[not estimated]
Panel	9–14 %	No trade diversion
Dynamic panel	2–6 %	[not estimated]
Panel	14%	8%
Panel	15%	8%
Panel	28%	12–14 %
Panel	12–200 %	[not estimated]
Panel	0–22 %	[not estimated]
Panel	9–13 %	1–9 %

9. Berger and Nitsch (2008).

The fact that trade between the original members of the currency union jumps up in 1999 and remains at a higher level after the effects of other factors are removed suggests the a euro effect does exist. The same applies to trade between members and outsiders. This is illustrated in figure 5.3.

The bars show the percentage difference in trade between euro countries, exports from euro to non-euro countries and exports from non-euro to euro countries respectively, and trade between non-euro countries and relative to 1995, when factors other than the euro have been accounted for. These factors include changes in GDPs, exchange rates, tariffs and all factors that are specific to each country pair and constant over time, such as geographical distance, a common language, a common legal system or participation in the Inner Market. Half-toned bars in Figure 5.3 indicate statistically significant and insignificant deviations respectively. It is quite clear that trade that has been subjected to euro »treatment« jumps up and is statistically significant from 1999 onwards. The pre-treatment period has deliberately

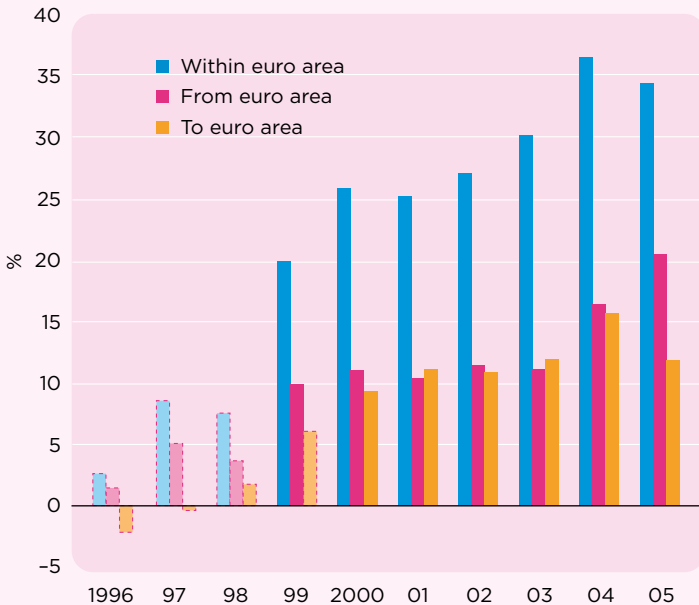


FIGURE 5.3 Annual euro effects on trade.

Source: Flam and Nordström (2007). Note: Half-toned bars indicate statistically insignificant effects.

been kept short – 1995 to 1998 – to minimize the effect of trends that coincide with the euro effects.

It remains to explain how the euro could have such a great impact, considering that the cost of exchanging, hedging and handling currencies is estimated at a fraction of one percent, and that the bulk of the extensive empirical research on the impact of exchange rate uncertainty on trade has been unable to find any significant negative effects.¹⁰

Lacking solid evidence, we can only suggest possible explanations. One possibility is that the effect of eliminating nominal exchange rate uncertainty completely and irrevocably by replacing national currencies with a common currency, is quite different from reducing exchange rate uncertainty by reducing the variability of flexible exchange rates with different national currencies. Short-term variability can be hedged against at a small cost, but it is not possible to hedge against long-term movements in nominal exchange rates. We believe that the risk of such long-term movements has a substantial and negative impact on trade, and that the elimination of nominal exchange rate uncertainty can therefore have a substantial positive effect.¹¹ One reason may be that starting to export involves fixed costs which are hard to recover if the exchange subsequently moves unfavorably. Elimination of nominal exchange rates lowers the hurdle.¹² Some research indicates that the euro has in fact given rise to new exports, but also that this part of the increase in total exports is slight.¹³

A possible explanation for the substantial effect on exports from euro to non-euro countries is that by lowering their costs the euro has made euro area exporters more competitive. The cost of cross-border production and of using inputs from suppliers in the euro area has fallen. Small reductions in the cost of shipping intermediate inputs across national borders in the euro area can amount to a sizable total cost saving.

10. See the survey by McKenzie (1999). The study by Klein and Shambaugh (2006) estimates the effects of fixing the exchange rate bilaterally on bilateral trade and finds that fixing increases trade by 35 %. Earlier studies estimated the effect of the volatility of exchange rates.

11. The empirical research is based on high-frequency data (monthly, quarterly or yearly exchange rate changes) and not on low-frequency data, i.e. movements with a duration of more than a year and often several years, such as the movement of the dollar against other major currencies in recent years. Schiavo (2007) develops the theoretical argument and shows that exchange rate misalignment has negative effects on foreign direct investment.

12. This has been suggested by Baldwin (2006).

13. Baldwin et al. (2008) and Flam and Nordström (2007).

Finally, the increase in exports from outsiders to the euro area may be explained by the elimination of currency barriers *within* the euro area. If outside exporters are using one country in the euro area as a platform for exports to the other euro area countries – by keeping sales, inventories and distribution facilities in one location – they benefit almost as much as producers located in the euro area do.

The increase in trade for the outsiders from joining the currency union

Figure 5.4 shows estimated euro effects for individual countries. The estimates measure the amount whereby exports in 1999–2006 differ on average from the average in 1995–1998 and in relation to the corresponding difference for exports between outsider countries (difference-in-differences).

Note that the euro effects are fairly uniform across countries; they do not depend on a few countries only. Note also that most of the increase in exports from outsider to euro countries is due to the European countries in the control group. It is perhaps no coincidence that the ranking between the three outsiders is consistent with the magnitude of the variability of the exchange rate between their respective national currencies and the euro, whereby Denmark shows a very low level, Sweden an intermediate level and the UK a relatively high level of volatility.

Denmark's exports to the euro countries have increased on average more than those of the euro countries themselves. However, we cannot draw the conclusion that Denmark would enjoy no trade gains from joining the currency union. First, exports to the rest of the euro countries from Denmark (and Sweden and the United Kingdom) would probably have increased even more had it (or they) belonged to the union, since every euro country is estimated as having increased its trade with other euro countries more than with outsiders. Second, membership would have made the outsiders more attractive as trade partners for other outsider countries and have given their trade with other outsiders a boost.¹⁴

The euro effect on exports (and analogously on imports) for the outsiders from joining can be calculated roughly as:

14. In a much cited study for the ECB Baldwin (2006) overlooks the second effect and arrives at a relatively modest effect from joining the currency union.

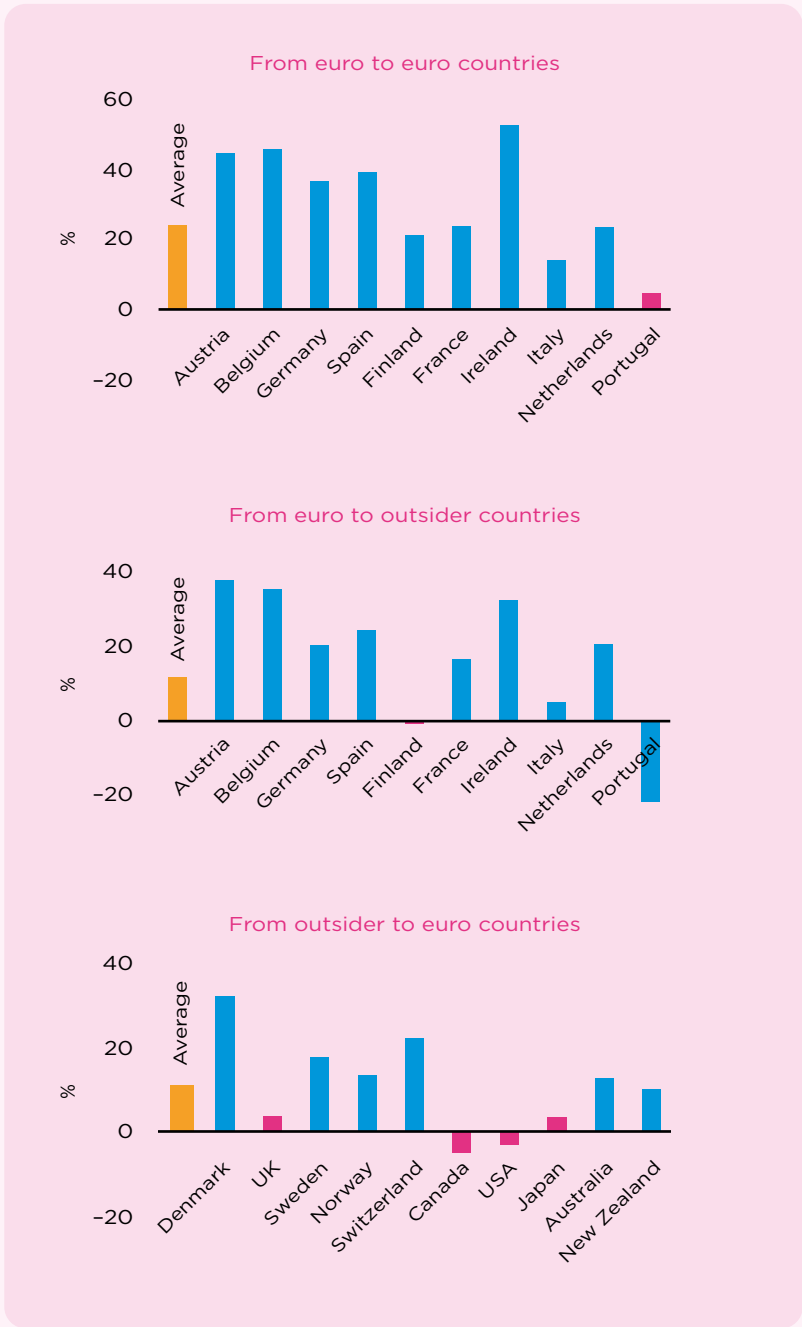


FIGURE 5.4

Note: Red indicates statistically insignificant effects.

Exports to other euro countries	1.2 % times euro area share of total exports
Exports to outsider countries	+ 1.2 % times outsiders' share of total exports
Total exports	= 1.2 %

The calculation assumes that trade with euro countries increases relative to trade with outsiders by as much as the average, 1.2 per cent, and that the outsiders' trade as members of the currency union with other outsiders likewise increases by as much as the average, 1.2 per cent. (We do not need to know the shares of trade with euro countries and outsiders respectively since the increases are of the same magnitude.) The calculation also assumes that trade with all outsider countries, not just the control group countries, will increase by the same amount. The calculation is conservative, since euro effects are increasing over time; the trade gains would be greater had we used data for the most recent years instead of the average for 1999–2006.

It is impossible to translate the trade gains into GDP gains with reasonable precision without much more data and knowledge on how the economy functions. International trade does increase GDP: a country's GDP would be much lower if it were forced to produce all the goods and services that it consumes (if that were even possible). By exporting some goods and services it can buy other goods and services abroad at less cost than it would take to produce the imported goods and services at home.

To get an idea of the steps necessary to translate the trade gain into a GDP gain, we can consider a hypothetical example. Assume that it would cost 10 per cent more on average to produce the extra 1.2 per cent of imports domestically. In other words, the resources used to produce the extra 1.2 per cent of exports to buy 1.2 per cent more imports are assumed to be 10 per cent more productive than before. Assume further that the ratio of exports to GDP before joining is 0.5, and that the domestic value added (resource content) of exports is 50 per cent. This means that the 1.2 per cent trade gain translates into a GDP gain of 0.3 per cent. This example is purely hypothetical, but it is probably correct in indicating that the GDP gain is only a fraction of the trade gain for increases in trade at the margin. Nonetheless, it is not negligible and the discounted value of all future GDP gains would add up to a sizable gain.

Euro effects on foreign direct investment

It is not immediately clear what effects the elimination of costs for currency exchange and nominal exchange rate uncertainty would have on foreign direct investment, FDI.¹⁵ FDI is commonly defined as horizontal (when local production is established for local sales), or vertical (when cost differences between different locations are exploited), although the distinction is not always clear. Horizontal FDI tends to be a substitute for trade. Most FDI within the EU-15 is horizontal. Vertical FDI, on the other hand, tends to be a complement to trade. Vertical FDI is more common between old and new EU members.

FDI can also occur for purely strategic reasons. For example, a firm acquires a foreign firm to gain market power, to eliminate a competitor or to preempt the acquisition of the foreign firm by a competitor. A large share of the boom in FDI that occurred in the euro area at the turn of the millennium was in the form of strategic mergers and acquisitions, and involved little actual transfer of capital across borders.¹⁶

The euro rendered exports between euro countries less costly, and should serve to substitute exports for horizontal FDI for firms inside the euro area. However, it has also made it more attractive for firms outside to establish production or distribution facilities in one euro country to serve as a platform for exports to others. If this is so, then the euro will tend to increase FDI to the euro area and make FDI complementary to trade.

We have hypothesized that a complete elimination of nominal exchange rate uncertainty can have major effects on trade, much greater than the empirical research based on the variability of existing exchange rates might lead us to expect. The direction in which the elimination of nominal exchange rate uncertainty would affect FDI is not clear. An important function of FDI is to hedge against uncertainty in the real exchange rate. By establishing local production, costs and revenues will be more closely matched in terms of currency. A common currency eliminates this motive for FDI. Exchange rate uncertainty is also an *ex ante* risk where FDI is concerned. It costs less to reduce or stop exports *ex ante* in face of an unfavorable exchange

15. A cross-border investment is recorded as foreign direct investment if the investor has – or obtains – more than ten percent of the enterprise concerned. Otherwise, it is recorded as a portfolio (financial) investment.

16. Taylor (2008).

Author(s)	Period
Brouwer, J., R. Paap and J.-M. Viaene (2007)	1990–2004
Coourdacier, N., R. De Santis and A. Aviat (2009)	1985–2004
de Sousa, J. and J. Lochard (2006)	1982–2004
Flam, H. and H. Nordström (2008)	1995–2006
Foad, H. (2006)	1986–2002
Petroulas, P. (2007)	1992–2001
Schiavo, S. (2007)	1980–2001

rate than it does to close down local production. Elimination of the uncertainty should stimulate FDI.

It is evident that FDI and trade can both be complements and substitutes for each other. Thus the direction in which the euro affects FDI is not clear. Most of the relatively few studies to date regarding the euro effects on FDI conclude that the euro has had a substantial positive impact on FDI within the euro area, while the rest of the studies report no such impact. Table 5.2 provides an overview of these findings. It is possible that the studies that find positive effects are confusing effects of the euro with effects of the Inner Market, by failing to control adequately for the effects of the latter.¹⁷

Much FDI is in the form of mergers and acquisitions (M&A). One of the studies has used data on M&A to estimate the effect of the euro on M&A both within the euro area and on countries outside it.¹⁸ Such data is much more reliable than the official kind as regards total FDI. It is estimated that the euro increased horizontal M&A in the euro area by 200 per cent, and horizontal M&A from outside to euro countries by 70 per cent. There was an estimated increase in vertical M&A from outside to euro countries by 140 per cent. The effects were concentrated around 2000, when there was a general surge in M&A in high-income countries, but this subsequently became much weaker. The authors of the study interpret the powerful effect of the euro as a result

17. Flam and Nordström (2008).

18. Coourdacier, De Santis and Aviat (2009).

Results

Method	Within euro area	Between euro and non-euro area
Panel	19 %	4 %
Panel	200 %	70 %
Panel	26 %	[not estimated]
Panel	0 %	[not estimated]
Dynamic panel	[not estimated]	Positive on FDI from US
Panel	16 %	8-11 %
Panel	300 %	200 %

of, first, trade and product market liberalization associated with the Inner Market and, second, the financial integration and elimination of nominal exchange rate uncertainty associated with the currency union, which acted as a trigger in a period of rapid increases in equity values. It is interesting to note that the biggest euro effects on horizontal M&A were registered in the manufacturing sectors exhibiting the biggest effects of the euro on trade. In other words it seems that, contrary to what might be expected, trade and FDI to some extent complemented one another.

Summary

Most studies that estimate the impact of the euro on trade find economically substantial effects, both on trade between members of the currency union and trade between members and outsiders. The effect increases over time. Some part of the measured impact could be due to other long-term factors but the euro effect is probably still very substantial. Our own calculation indicates that trade in the euro area is 24 per cent higher on average after 1999 than in the preceding years, and that trade between the euro area and outside countries is about 12 per cent higher.

It is not clear what effect we should expect on FDI from the euro. Trade and FDI can be substitutes as well as complements for one another. Several of the studies of the euro's impact on FDI indicate effects of the same magnitude as for trade, but the findings can be ques-

tioned. It seems that the effects of the Inner Market and the effects of the euro have not been correctly separated in the statistical analysis. There were, however, very strong euro effects on horizontal M&A in manufacturing, both within the euro area and from it. This indicates that the financial integration and elimination of nominal exchange rate uncertainty that followed the introduction of a single currency, did have an important impact on investment decisions.

The potential for stimulating trade and investment through the common currency has not been exhausted. First, it takes time for firms and households to take full advantage of the common currency. Second, only 16 of the 27 member states in the European Union have joined the currency union. Third, much is left before the Inner Market genuinely becomes a common market for goods, services, capital and people. Some Inner Market directives still remain to be included in national legislation and their application is sometimes incorrect. For instance, there are inadequate product standards and insufficient mutual recognition, different tax rates cause substantial administrative costs, public procurement is still largely domestic (defense in particular), barriers remain in many service sectors, such as financial services, telecommunications, postal services, energy supply and transport services. The Inner Market is likely to remain an important condition for the trade-creating effect of the euro, while the common currency is important for the functioning of the Inner Market. They are in other words mutually reinforcing. Hence, member states can boost the positive effects of the euro on trade by continuing and intensifying the work of completing the Inner Market.

REFERENCES

- Anderson, James and Eric van Wincoop (2003), »Gravity with Gravititas: A Solution to the Border Puzzle«, *American Economic Review*, 93, pp. 170–192.
- Baldwin, Richard and Paul Krugman (1989), »Persistent Trade Effects of Large Exchange Rate Shocks«, *Quarterly Journal of Economics*, 419, pp. 635–654.
- Baldwin, Richard, Frauke Skudelny and Daria Taglioni (2006), »Trade effects of the euro – evidence from sectoral data«, *Working Paper Series* 446, European Central Bank.

- Baldwin, Richard, Virginia DiNino, Lionel Fontagné, Roberto A. De Santis and Daria Taglioni (2008), »Study on the Impact of the Euro on Trade and Foreign Direct Investment«, *European Economy Economic Papers* No. 321.
- Barr, David, Francis Breedon and David Miles (2003), »Life on the Outside«, *Economic Policy*, 18, pp. 573–613.
- Berger, Helge and Volker Nitsch (2008), »Zooming Out: The Trade Effect of the Euro in Historical Perspective«, *Journal of International Money and Finance* (forthcoming).
- Brouwer, Jelle, Richard Paap and Jean-Marie Viaene (2008), »The Trade and FDI Effects of EU Enlargement«, *Journal of International Money and Finance*, 27, pp. 188–208.
- Bun, Maurice and Franc Klaassen (2007), »The Euro Effect on Trade is not as Large as Commonly Thought«, *Oxford Bulletin of Economics and Statistics*, 69, pp. 473–496.
- Chintrakarn, Pandej (2008), »Estimating the Euro Effects on Trade with Propensity Score Matching«, *Review of International Economics*, 16, pp. 186–198.
- Coourdacier, Nicolas, Roberto De Santis and Antonin Aviat (2009), »Cross-Border Mergers and Acquisitions and European Integration«, *Economic Policy*, Vol. 57.
- De Nardis, Sergio and Claudio Vicarelli (2003), »The Impact of Euro on Trade: The (Early) Effect is not so Large«, unpublished manuscript.
- de Sousa, José and Julie Lochard (2006), »Does the Single Currency Affect FDI? A Gravity-Like Approach«, unpublished manuscript.
- Faruqee, Hamid (2004), »Measuring the Trade Effects of EMU«, IMF Working Paper 154.
- Flam, Harry and Håkan Nordström (2003), »Trade Volume Effects of the Euro: Aggregate and Sector Estimates«, unpublished manuscript.
- Flam, Harry and Håkan Nordström (2007), »Explaining Large Euro Effects on Trade: The Extensive Margin and Vertical Specialization«, unpublished manuscript.
- Flam, Harry and Håkan Nordström (2008), »The Euro Impact on FDI Revisited and Revised«, unpublished manuscript.
- Foad, Hisham (2006), »Export-Oriented FDI and the Adoption of the Euro«, unpublished manuscript.
- Frankel, Jeffrey (2008), »The Estimated Effects of the Euro on Trade: Why are They Below Historical Evidence on Effects of Monetary Unions Among Smaller Countries?«, unpublished manuscript.
- Gomes, Tamara et al. (2006), »The Euro and Trade: Is there a Positive Effect?«, unpublished manuscript.
- Klein, Michael and Jay Shambaugh (2006), »Fixed Exchange Rates and Trade«, *Journal of International Economics*, 70, 359–383.

- 94 McKenzie, Michael (1999), »The Impact of Exchange Rate Volatility on International trade flows«, *Journal of Economic Surveys*, 13, pp. 71–106.
- Micco, Alejandro, Ernesto Stein and Guillermo Ordoñez, »The Currency Union Effect on Trade: Early Evidence from EMU«, *Economic Policy*, 37, pp. 317–356.
- Petroulas, Pavlos (2007), »The Effect of the Euro on Foreign Direct Investment«, *European Economic Review*, 51, pp. 1468–1491.
- Schiavo, Stefano (2007), »Common Currencies and FDI Flows«, *Oxford Economic Papers*, 59, pp. 536–560.
- Taylor, Christopher (2008), »Foreign Direct Investment and the euro: The First Five Years«, *Cambridge Journal of Economics*, 32, pp. 1–28.

THE THREE OUTSIDERS AND THE MONETARY UNION

BEFORE THE START of monetary union in 1999, Denmark, Sweden and the UK decided that they did not want to participate. Denmark and the UK obtained opt-out clauses in the Maastricht Treaty, while Sweden has chosen to stay out unilaterally. In all three countries, the key reason for this decision was – and still is – a negative view among the electorate. The Danish and Swedish governments have been in favor of membership and have put the issue before the people in a referendum (in Denmark twice). In the UK, the government has been in favor in principle, but with caveats.

This chapter reviews the costs and benefits of being outside the monetary union for Denmark, Sweden and the UK in view of the evidence from the last ten years. Building on the discussion in the preceding chapters, we consider the effects in relation to monetary policy,

fiscal policy, labor markets, trade and investment, and financial markets. We also briefly discuss political issues – whether the outsiders have experienced reduced influence in the EU and whether the entry of new member states into the monetary union has had any significance for the three outsiders. We start, however, by reviewing the background for why Denmark, Sweden and the UK are not currently members of the monetary union.

Short background

In the negotiations leading up to the Maastricht Treaty, the UK was granted an opt-out clause, leaving it up to the UK to decide whether it wanted to join the monetary union. In 1997, the UK government committed itself to the principle of joining the single currency, but with a number of important caveats. Membership should be in the national interest, the case should be clear and unambiguous, and there should be popular consent. The government stated five economic tests in terms of (1) business cycle compatibility (convergence), (2) sufficient flexibility in case of problems, (3) conditions for investments into the UK, (4) competitiveness of the financial industry, and (5) overall effect on growth and stability. Furthermore, a decision by the government should be put to a referendum of the British people.

In 2003, an extensive review by the UK Treasury concluded that the investment and financial services tests were met, but not the convergence and flexibility tests. Thus, the Treasury's assessment was that »a clear and unambiguous case for UK membership of EMU has not at the present time been made and a decision to join now would not be in the national economic interest.«

In contrast, the Danish Government accepted the Maastricht Treaty. However, when the Treaty was presented in a referendum in 1992, it was rejected by a slight majority. Denmark then obtained four opt-out clauses, including exemption for transition to the third stage of EMU, the monetary union. In September 2000, a new referendum was conducted. Prior to the referendum, the Government emphasised that the efficiency arguments in favor of adopting the euro, essentially »appealed to the purse of the Danes«.¹ However, largely for political reasons – to retain sovereignty – the Danes voted No with a majority of 53 percent.

1. Marcussen (2005).

Sweden is according to the Maastricht Treaty required to adopt the euro whenever it satisfies the entry conditions. The Swedish government has nevertheless maintained that the Swedish parliament will take the final decision on Swedish membership. Sweden does not qualify at present, since the country has not made the necessary changes to its central bank legislation and does not participate in the Exchange Rate Mechanism (ERM II) to meet the condition of a stable exchange rate. The issue of Sweden joining the monetary union is therefore – conveniently – not put to the test.

In 1996, a Swedish government commission of experts concluded that, at that time, the arguments against membership were stronger than the arguments in favor. The commission therefore recommended that Sweden should wait.²

In September 2003, a referendum on Swedish membership in the monetary union was held and a majority of 56 percent voted No. Many of the sceptics argued that full monetary union membership would have negative consequences for Sweden's sovereignty and be detrimental for democracy.³

The three outsiders differ with respect to their overall view on the EU. The Danes are generally much more positive than the Swedes and the British. In the October 2006 Eurobarometer, 74 percent of Danes say Yes to the question: »Taking everything into consideration, would you say that your country has on balance benefited or not from being a member of the European Union«. This makes Denmark the third most positive among the EU members. In contrast, in Sweden 41 percent says Yes and in the UK 39 percent, making them the third most and the most negative of all EU members respectively.

MACROECONOMIC PERFORMANCE

At the overall economic level, the three outsiders have done well. Growth in real GDP has been considerably higher in Sweden and the UK than in the euro area, while it has been somewhat lower in Denmark. However, the EU average is pushed down by the weak situation in the bigger countries. The unweighted average growth rate of the euro area is comparable to the unweighted average of the outsiders. In terms of GDP per capita, all the three outsiders are well above the EU average. Employment growth has been higher in the euro area

2. Calmfors et al. (1996).

3. Lindahl and Naurin (2005).

TABLE 6.1 Macroeconomic performance – the euro area and the outsiders.

	Period averages			
	Euro area ⁶		Denmark	
	1989-98	1999-07	1989-98	1999-07
Real GDP growth ¹	2.3	2.2	2.2	2.0
Real GDP ²	94.3	109.9	109.8	128.1
Employment growth	0.1	1.0	0.0	0.3
Unemployment ³	9.6	8.3	7.1	4.6
Inflation	3.7	2.1	2.5	2.1
Inflation deviation ⁴	2.0	0.6	0.7	0.4
Fiscal balance ⁵	-4.3	-1.8	-1.9	2.4
Gross public debt ⁵	80.2	71.8	69.7	31.8
Trade balance ⁵	1.0	1.6	4.7	4.6

1. Annual rate; per capita PPP; OECD = 100 in 2000.
2. Per capita; OECD = 100 in 2000.
3. % rate of labor.
4. Absolute value of annual deviation from 2 percent.

than among the outsiders, but this must be seen in light of the unemployment being much higher in the euro area at the outset. In 2008, unemployment was still markedly lower for all three outsiders than the euro average.

The outsiders have also done well in the area of monetary and fiscal policy. Inflation has been kept fairly close to the target of 2 percent, with the average annual deviation in the range 0.4–0.8 percent. However, the average annual inflation deviation from 2 percent has been low in many of the monetary union countries also, and the unweighted average over the euro countries is 0.8 percent. In terms of fiscal policy, two of the three outsiders, Denmark and Sweden, have had a positive fiscal balance on average compared to the negative balance of the euro countries, while the UK in recent years has run a fairly large and growing deficit.

Overall, the performance of the outsiders is comparable to the more successful of the monetary union countries. But what lies behind this performance? Does it depend on the freedom of being outside the monetary union or is it caused by other factors? Let us look at parts of the economy that could or would be particularly influenced by monetary union membership.

Sweden		UK		Euro area unweighted	
1989-98	1999-07	1989-98	1999-07	1989-98	1999-07
1.5	3.2	2.1	2.7	2.9	3.0
102.3	132.2	96.8	119.7	100.7	126.6
-1.2	0.4	-0.1	0.2	0.4	0.8
5.8	4.9	8.3	5.2	8.2	6.9
4.1	1.4	3.7	1.6	4.0	2.4
3.0	0.8	1.8	0.6	2.4	0.8
-3.4	1.4	-3.7	-1.3	-4.0	-0.8
82.5	46.9	53.4	47.5	73.3	56.8
3.6	6.5	-1.1	-2.2	1.7	2.9

5. % of GDP.

6. 12 countries weighted by population.

Source: <http://stats.oecd.org>, Economic Outlook No. 83, OECD Factbook 2008.

Monetary policy

The three outsiders have chosen different monetary policy regimes. While Sweden and the UK have adopted an inflation target, Denmark has maintained a fixed exchange rate towards the euro.

Members of the monetary union have no independent monetary policy. The monetary policy interest rate is set by the ECB Governing Council, taking the effects for the whole euro area into account. Given the size of the euro area, a single country – even the UK if it was a member – will by itself have a small or negligible impact on the interest rate. Thus, the euro interest rate will only suit an individual member country to the extent that the cyclical situation in the country is close to the euro average. How do the outsiders stand on this count?

Figure 6.1a shows that there have been fairly large discrepancies when it comes to GDP-gaps between the outsiders and the euro area.⁴ For example, the downturn in the early 1990s was much sharper and stronger in Sweden than in the euro area. However, the fluctuations in the GDP-gap seem to have become smaller over time, which would reduce the importance of the issue. Furthermore, there is also a ten-

4. The GDP-gap is the difference between actual and the trend of GDP, normally positive in a boom when GDP is above trend and negative in a downturn.

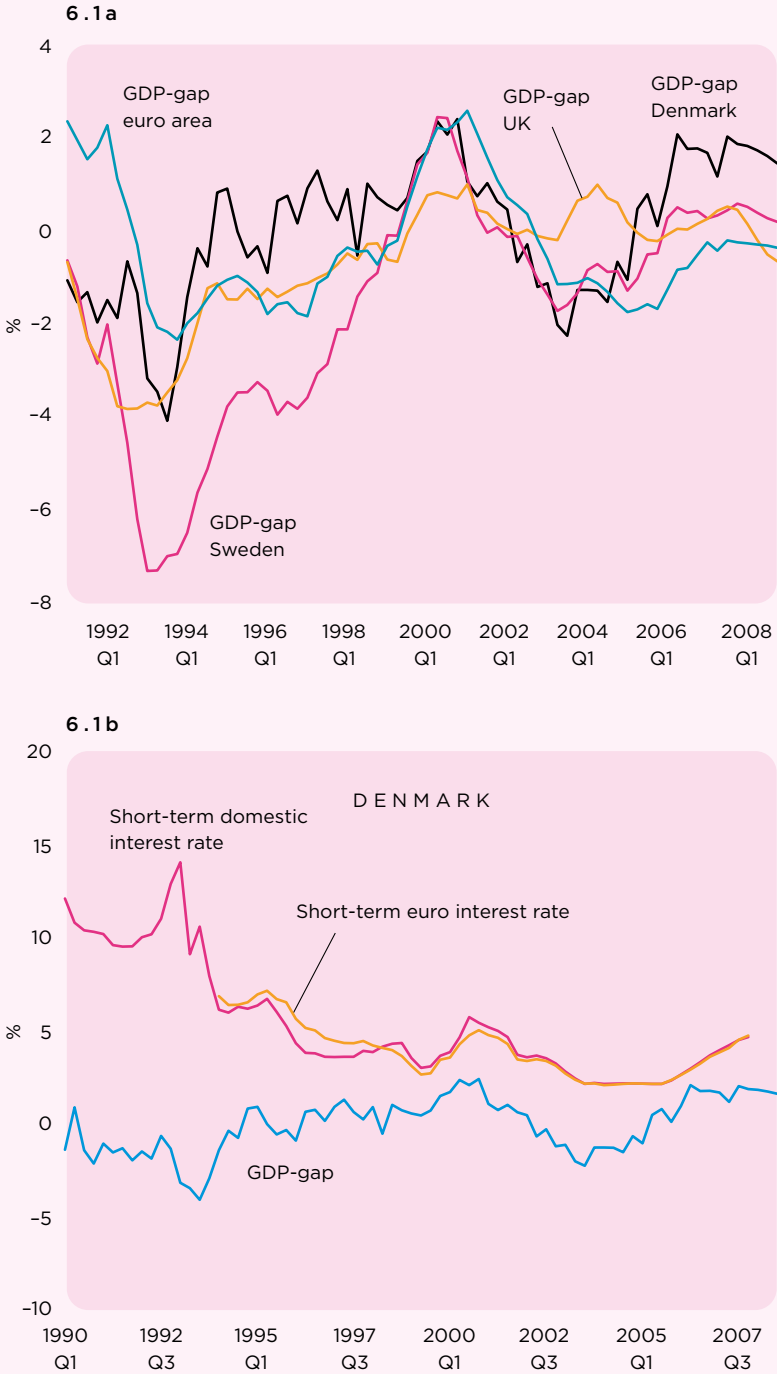
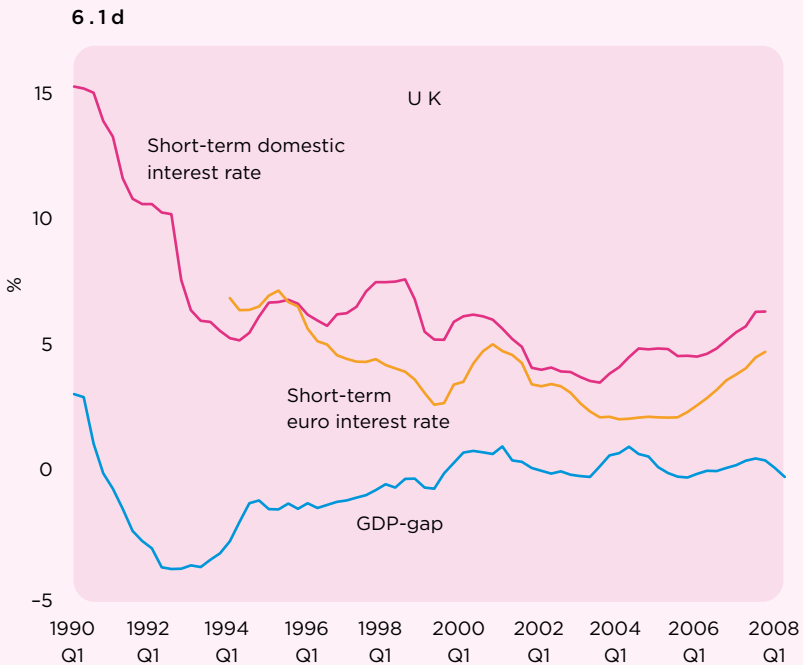
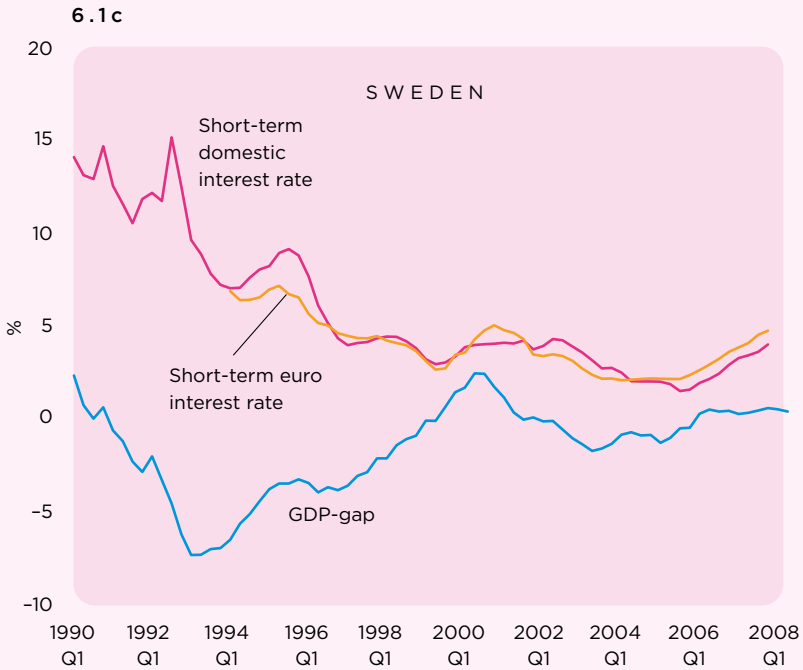


FIGURE 6.1 The upper left panel displays the GDP-gap for the euro area and for each of the three outsiders. The other three panels show the GDP-gap



and the short-term interest rate in the country, as compared to the short-term euro interest rate.

dency towards more synchronization of business cycles. According to the study by the European Commission of monetary union after ten years, the UK economy is much more synchronized with the euro area now than it was in the 1990s.⁵ Correspondingly, another study finds that Swedish business cycles have become more correlated with the euro area since the mid-1990s.⁶

In spite of more synchronization, there are still sizeable differences. Notably, in 2004 the UK economy was above trend, with increasing inflation albeit from a low level, while the euro area was in a downturn. As can be seen from Figure 6.1d, the upshot was that the Bank of England set an interest rate which was 2–3 percent above the euro interest rate at the time. If the UK had been a member of the monetary union, the low euro interest rate would have stimulated the British economy further. While the UK inflation rate for several years was below its target, suggesting that the UK interest rate may have been too high, the subsequent evolution of the UK economy suggests otherwise in one respect. A lower interest rate would have stimulated the surge in property prices further, presumably making the recent fall in property prices sharper.

For Sweden, the difference in the cyclical position as compared to the euro area has been smaller, which is also reflected in the small difference in interest rates, as can be seen in Figure 6.1c. This is consistent with an analysis of how well the ECB interest rate policy has fit the individual members of the monetary union.⁷ The analysis finds that the euro interest rate would fit well for Sweden and less well for the UK. However, it also finds that the euro interest rate has been even less suitable for two monetary union members, Ireland and the Netherlands, than for the UK.

By contrast, the same analysis finds that the euro interest rate has suited Denmark even better than Sweden. This suggests that Denmark has lost little in terms of monetary stabilization policy from keeping a fixed exchange rate with the euro, implying that the Danish interest rate parallels that of the euro, as Figure 6.1b shows. However, in 2006–2007 GDP-growth was relatively high and a higher interest rate than in the euro area might have been more appropriate.

5. European Commission (2008).

6. Söderström (2008).

7. Calmfors et al. (2007). Specifically, the study calculates the optimal interest rate for each country based on a stylized monetary policy rule, a forward-looking Taylor rule, with the same weights for all countries.

Another side of monetary policy is the exchange rate. How would the outsiders have fared on this account if they had adopted the euro? In the first years after the introduction of the euro in 1999, the British pound and the Swedish krona appreciated against the euro, to some extent following the strong US dollar (Figure 6.2). However, the krona has depreciated back to around the original level, and the pound has depreciated even further.

Figure 6.3a shows the nominal effective (trade-weighted) exchange rate for the outsiders. We notice considerable volatility for the Swedish krona in the early period, and more stability later on. For the pound, sizeable fluctuations have persisted. Figure 6.3b shows the nominal effective exchange rate in the hypothetical case that the currencies were linked to the euro, formed by multiplying the series in Figure 6.3a by the series in Figure 6.2. This implies neglecting any possible effect on the euro exchange rate and on the trading patterns of the countries. We observe that this would have led to a smoother evolution of the

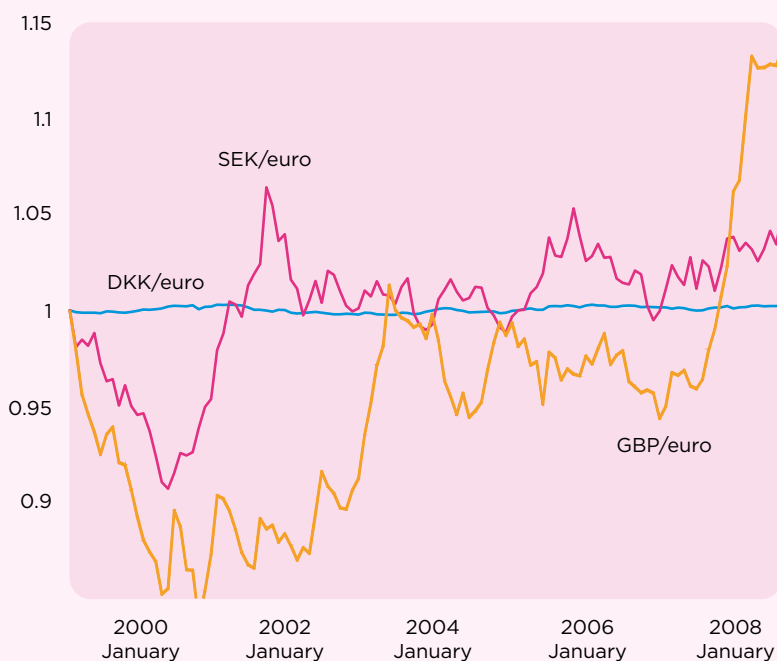
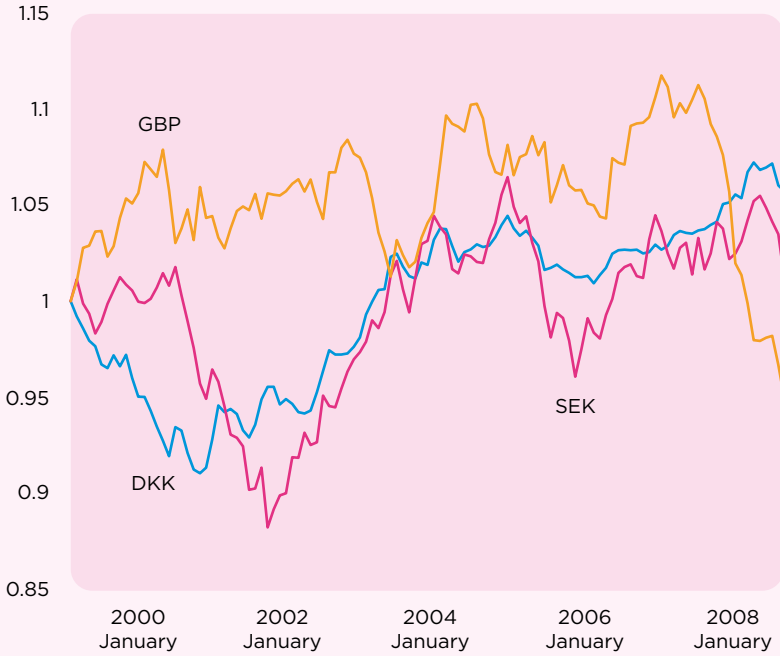


FIGURE 6.2 Exchange rates against the euro.

Note: Lower value indicates stronger currency.

6.3 a



6.3 b

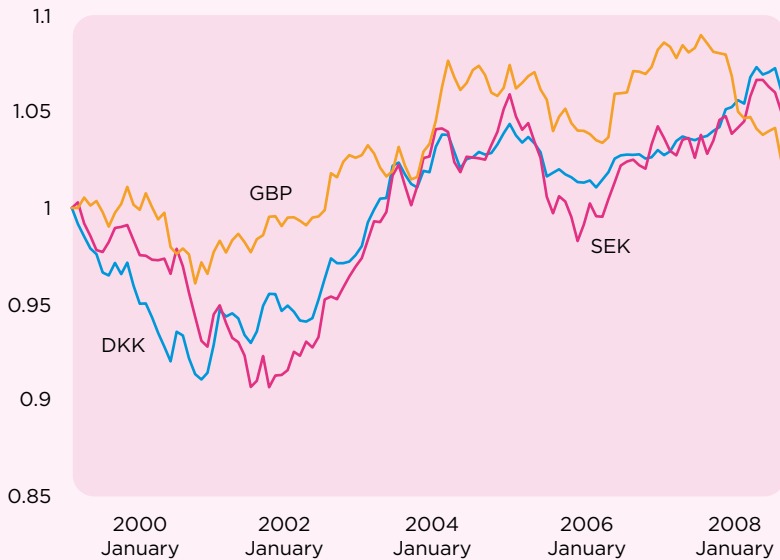


FIGURE 6.3 Upper panel: the effective exchange rate (BIS, broad index, time-varying trade based weights, geometric averages of bilateral exchange rates). Lower panel: effective exchange rate if linked to the euro. Note: Higher values indicates stronger currency.

nominal effective exchange rate, to a large extent following the early depreciation of the euro and the subsequent appreciation. Thus, over this period, it seems that monetary union membership would have led to fewer short run fluctuations in the effective exchange rate, but also to more persistent changes.

What would have been the effect of a smoother evolution of the exchange rate? The bulk of empirical research suggests that short-run fluctuations in the exchange rate occur for reasons that are disconnected from the economic fundamentals, such as GDP and interest rates.⁸ This means that nominal exchange rate fluctuations in general are costly to the economy. However, exchange rate fluctuations may in some cases have a stabilizing effect. A study of the consequences of a Swedish membership in the monetary union within an estimated model of the Swedish economy finds that, since 1993, exchange rate movements have helped to stabilize the economy after disturbances in other sectors, but they have also to some extent acted to destabilize the economy by introducing additional volatility.⁹

Another issue is the risk of more persistent imbalances in the real exchange rate or competitiveness. The experience of the European monetary union is that excessive inflation in a given country may be very persistent. One reason is that with the nominal interest determined in the euro area as a whole, higher inflation will reduce real interest rates in the country, which in turn will stimulate the economy and fuel inflation further (this is often referred to as the Walters' Critique of monetary union). Greece, Ireland, Portugal and Spain have experienced persistent high wage and price growth as compared to productivity growth, leading to a considerable loss in international competitiveness relative to other euro area countries.¹⁰ When wages are rigid downwards in nominal terms, it may be difficult to restore competitiveness for a country that is member of a monetary union.¹¹ By contrast, a country with independent monetary policy can to a greater extent prevent excessive inflation from appearing, and thus avoiding a loss of competitiveness.

In the debate about monetary union membership, one concern for the outsiders was to maintain the credibility of monetary policy outside the monetary union. All the outsiders had a fairly recent his-

8. See for example the recent survey by Rigobon (2008).

9. Söderström (2008).

10. European Commission (2008), 58–60.

11. See evidence in Dickens et al. (2007) and Holden and Wulfsberg (2008).

tory of high inflation, and monetary union membership was seen as a way of reducing the risk of repeating this history to a minimum. Indeed, the Swedish monetary union commission argued that unless the Riksbank were given increased independence, it would be a strong argument for entering the monetary union.¹² However, the Riksbank reform was carried through, and all the three countries have achieved credibility for their respective monetary regimes.

By some accounts, maintaining credibility has been most impressive for the Danish fixed exchange rate regime. In a world of highly internationally mobile capital, it has been increasingly difficult to maintain a fixed exchange rate, and many European countries failed to do so in the 1990s. Denmark's fixed exchange rate, however, has remained perfectly credible, until the recent financial crisis. The high credibility of the Danish fixed exchange rate regime has reflected the high correlation of the business cycles, implying that the strain for the Danish economy from adopting the euro interest rate has generally been small. It has also reflected the substantial gain from maintaining a fixed exchange rate, as almost half of Denmark's exports are directed at the euro area. Third, Denmark has an intervention agreement with the ECB, allowing for unlimited intervention by the ECB if such is necessary to maintain the parity, conditional on not being a threat to price stability in the ECB.¹³ In the current financial crisis the interest rate differential, however, has increased to over one percent.

Fiscal policy

Membership in the monetary union would have two main implications for fiscal policy. First, the Stability and Growth Pact sets a more binding ceiling on the budget deficit and the public debt for members than it does for outsiders. Second, an increased burden is placed on fiscal policy to stabilize the economy.

Table 6.1 suggests that in recent years Denmark and Sweden have done considerably better than the euro countries in terms of fiscal sustainability, with a sizeable fiscal surplus on average and consequently a much reduced public debt. The UK, on the other hand, has run a fairly big deficit in recent years – close to the Stability and Growth Pact

12. Calmfors et al. (1997).

13. See <http://europa.eu/scadplus/leg/en/lvb/l25082.htm>

limit of 3 percent – but has a public debt that is lower than the average among the euro countries.

However, as pointed out in Chapter 3, some of the euro area members have also done well in this context by maintaining a fiscal surplus and being able to reduce public debt substantially. Thus, one cannot conclude that monetary union membership in itself has made a big difference as regards fiscal discipline since 1999, but it did force several countries to improve their fiscal balances as they were struggling to meet the entry conditions before 1999.

The slight effect of monetary union membership on the fiscal balance may reflect that the incentives facing members and non-members are rather similar. Monetary union members are restricted by the Stability and Growth Pact, and they also have an incentive to obtain a fiscal surplus in a normal cyclical situation so as to be able to conduct an active stabilisation policy in a downturn. However, maintaining a sustainable fiscal policy is as important outside the monetary union, in part because bad fiscal discipline may easily undermine the credibility of monetary policy. Furthermore, Denmark and Sweden seem to have learned from their experience of high public debt in the early 1990s and have pursued a sound fiscal policy since.

Turning from fiscal sustainability to the increased role for fiscal policy in stabilization as a result of being a member of the monetary union, the evidence in Chapter 3 shows that most EU countries, including the three outsiders, have fairly large and effective automatic stabilizers. However, there has been no consistent countercyclical discretionary fiscal policy in the EU countries over the last decade, in contrast to the clear countercyclical fiscal policy in the US.

The sound fiscal position of Denmark and Sweden should make it possible for them to use fiscal policy to stabilize fluctuations in the economy, even under the rules of the Stability and Growth Pact. In Denmark, politicians have been well aware that maintaining a fixed exchange rate vis-à-vis the euro requires that the fiscal policy is used to stabilize the economy.¹⁴ In Sweden, the recent introduction of a fiscal council – a government agency with the task of providing an independent evaluation of Swedish fiscal policy – indicates an impressive political willingness to maintain a sound fiscal policy. Thus, on this account Denmark and Sweden would be well suited for monetary union membership. For the UK, the current large fiscal deficit would

14. See Andersen and Chiriaeva (2007).

108 suggest that more time would be needed to be prepared for the fiscal rules of the Stability and Growth Pact.

Even if fiscal policy can and should be used to stabilize the economy, one should remember that it cannot fully substitute for the lack of an independent monetary policy. There are well known limitations, including that it takes more time to implement, is harder to use in a timely fashion and that frequent changes in tax rates and public purchases may have adverse effects on the efficiency of the economy. Fiscal policy is also often influenced by political considerations that may run contrary to the demands of stabilization. Hence, fiscal policy is less potent as a measure to restore imbalances in the real exchange rate caused by excessive wage growth, as pointed out earlier.

Labor market and wage setting

The lack of independent monetary policy within a monetary union raises the demand for labor market flexibility to avoid having cyclical fluctuations lead to volatile employment levels and persistent unemployment. The outsiders seem well prepared for membership in the monetary union, having higher employment and lower unemployment rates than most of the monetary union members. Over the last ten years, they have also undertaken more extensive labor market reforms to increase labor market flexibility than the bulk of the monetary union members.¹⁵ In contrast, many monetary union members carried out more reforms before becoming members and less when membership was secured.

Employment growth, on the other hand, has been higher in the monetary union, which partly reflects the very low employment rate in some monetary union countries in the mid-1990s.

In spite of the UK labor market being among the most flexible in Europe, the 2003 Treasury Assessment based on the monetary union studies mentioned above concluded that »we cannot be confident that UK flexibility, while improved, is sufficient.« Underlying this conclusion was scepticism as to whether flexibility would be sufficient within the monetary union. It was argued that »the less progress on flexibility that is achieved in the EU, the greater the premium on a high level of flexibility in the UK economy«.

A key aspect of the labor market is wage setting. As pointed out in

15. See European Commission (2008), 80–82.

recent research, a strict inflation target may induce wage moderation in countries with centralized wage setting.¹⁶ The idea is that high wage growth will be met by a sharp rise in interest rates, which in turn will amplify the adverse effect on employment. This should induce wage moderation and consequently a permanently lower equilibrium level of unemployment.

Building on this effect, some researchers have pointed out that entry into the monetary union may remove such wage moderation for a country with centralized wage setting and a national inflation target since there would no longer be a clear link between national wage setting and the common interest rate in the euro area.¹⁷ This argument suggests that membership in the monetary union would increase equilibrium unemployment in Sweden by reducing the discipline imposed by the Riksbank on the power of unions. (The UK has decentralized wage setting and Denmark has a fixed exchange rate, so this effect would not be relevant for them.)

However, one can also argue that precisely because a national inflation target may discipline wage setters, it also weakens their incentives to coordinate on wage restraint.¹⁸ Thus, the stronger incentives for coordinated wage restraint within the monetary union, or with a fixed exchange rate as in Denmark, may imply coordination leading to lower equilibrium unemployment. Indeed, Finnish observers claim that monetary union membership has »reinforced demands for centrally agreed wage solutions«. ¹⁹ Other researchers find that wage restraint has increased not only in many euro area countries after the introduction of the euro, but also in Sweden and the UK.²⁰ In other words, they find no support for any relationship between wage restraint and monetary regime. However, this analysis does not control for host of other variables that are also likely to affect wage setting, such as institutional variables and labor market tightness, which reduces the value of this finding.

16. Bratsiotis and Martin (1999) and Soskice and Iversen (2000).

17. Soskice and Iversen (1998) and Cukierman and Lippi (2001).

18. Holden (2005).

19. Tiilikainen (2005).

20. Posen and Popov Gould (2006).

Trade and foreign direct investment

As noted in Chapter 5, one would expect a monetary union to have a positive effect on trade within the union. Currency exchange costs and exchange rate uncertainty are reduced. Prices become more transparent, which should increase competition. As noted in Chapter 5, most studies find evidence of increased trade, but the size of the estimated effect varies. On balance, the evidence indicates that monetary union membership has a fairly large positive effect on trade, raising trade both with the euro area and trade with other countries. This last effect could be because monetary union membership makes a country more attractive as a trade partner for countries outside the monetary union, and because euro area exporters become more competitive.

For the three outsiders in question, the analysis in Chapter 5 in fact finds that the increase in trade with the euro area has been greater for Denmark than the average increase for the euro area countries themselves. Denmark's performance may reflect the high credibility of the fixed exchange rate against the euro. For Sweden, the increase in trade with the euro area was somewhat smaller and for the UK much smaller than the average for all euro area countries.

Thus, from the evidence in Chapter 5 we would expect that the three outsiders, in particular Sweden and the UK, would have a clear benefit from increased trade by becoming members of the monetary union, both from trade within the euro area and increased trade with countries outside the monetary union and the EU. Moreover, increased trade with the euro area as a consequence of joining the monetary union may in itself lead to greater synchronization of business cycles with the euro area countries. This would reduce the loss from not having a national monetary policy.²¹

The effects of a monetary union on foreign direct investment are less clear than those on trade. As discussed in Chapter 5, there would be opposing effects at work. On the one hand, horizontal direct investment, such as establishing production in another country for sales there and to neighbouring countries, tends to be a substitute for trade. Thus, reducing the costs associated with trade may actually lead to less need for horizontal direct investment. On the other hand, the monetary union has also made it more attractive for firms from outside the monetary union to establish production within the union. As one

21. Frankel and Rose (1998).

might expect from opposing effects, the empirical studies surveyed in Chapter 5 show varying results. However, as argued in Chapter 5, the studies that find positive effects have not controlled adequately for the positive effect of the Inner Market. Overall, the conclusion in Chapter 5 is that the euro has had little or no effect on foreign direct investment within the euro area, but it may have had positive effects by attracting investment from countries outside.

Financial markets

The creation of monetary union led to the swift integration of some financial markets. As shown in Chapter 4, Figures 4.1 and 4.2, the money and public debt markets integrated almost immediately after the euro was launched, and integration in the corporate bond market is very high. However, the interest rates for these assets in Denmark and Sweden have also almost converged with the interest rates in the euro area, and the slight remaining differences probably reflect the difference in central bank interest rates. For the UK, the differences are somewhat larger, reflecting the difference in central bank rates.

Chapter 4 also shows that some integration has occurred in equity and credit markets, but this is still incomplete, particularly in the credit markets. For example, there is still considerable dispersion in mortgage rates within the monetary union, as shown by Figure 4.3 in Chapter 4. The dispersion for the two outsiders with inflation targeting Sweden and the UK is still greater, but much of this can be explained by the difference in central bank interest rates. Overall, this comparison would suggest that membership in the monetary union would have limited effects on financial integration for the outsiders.

An important additional concern is connected with financial stability. Bank credit is the major source of debt financing for non-financial corporations in Europe. Cross-border banking is increasing, and many European banks have become large in relation to the size of their home country. This increases the need for common, supranational bank regulation and supervision, which became evident during the financial crisis. Being a member of the euro area may be an advantage in a financial crisis, since it gives some influence in crisis management and possibly access to assistance that outsiders do not have.

One may also argue that having an independent national central bank gives more scope for adapting measures to the local circumstances. For example, if domestic economic problems mean that

domestic banks face a tighter liquidity squeeze than banks in other countries, a national central bank may supply additional credit by accepting a wider range of collateral. Within a monetary union, it might be difficult to address country-specific problems in such a way.

On balance, issues of financial stability seem not to present any clear arguments for or against joining the monetary union. The current financial crisis is a tough test for the system, however, and may yet produce such arguments.

Political issues

What do the outsiders lose in terms of influence by not being members of the monetary union? First, of course, the outsiders do not have a say in the Governing Council of the ECB. However, given that the outsiders – even the UK – are small relative to the total size of the euro area, the influence on the monetary policy of the ECB would in any case be small. Rather it would instead seem to be more important if being outside the monetary union means less influence on other EU policies that are of specific importance to the outsiders. Such a loss of influence could arise from not being allowed to participate in decision-making bodies, from being less attractive as a partner in the give-and-take of EU politics, or simply from reduced reputation.

Countries outside the monetary union do not participate in the regular informal meetings of the finance ministers of the euro area – the Eurogroup – that take place every month the day before the ECOFIN Council meetings. The Eurogroup is not mentioned in the Treaty and does not have any formal decision-making competence. It has nevertheless assumed more importance over time as a forum for discussion and the formation of consensus.

A number of studies have been undertaken to evaluate the loss of influence for the countries that have opted out of parts of the EU cooperation, including staying outside the monetary union. One study based on 33 in-depth interviews with Danish and British officials and 20 with representatives from EU bodies and other member states, all conducted between December 2005 and January 2008, finds that many of the Danish representatives described their opt-outs as a constraint on their ability to promote Danish interests. Besides the effect from being outside the decision-making in the areas involved, representatives may amplify the negative effect by self-censorship and by deliberately abstaining from seeking influence in order to avoid

domestic or international criticism. However, the outsiders were found to compensate by other strategies, for example by being »best-in-class« (as when Denmark and Sweden »overfulfill« the Stability and Growth Pact criteria), by helping other member countries and by suggesting compromises. Some British representatives, on the other hand, argued that opt-outs in some situations could be used positively to further national interests. In the monetary union case, the study indicates that UK representatives are comfortable with being outside the euro area and also happy to contribute to the EU on the question of how good monetary policy should be conducted.²²

Another study finds similarly that Sweden and Denmark improve their position by trying to be »best in class« and to maintain the best implementation record of EU directives.²³ They also practise the strategy of seeking bilateral cooperation with other member countries.

Several studies indicate that the three outsiders are not less influential than other EU countries, in spite of being outside the monetary union. In a study of 131 representatives in Council of Minister working groups from all EU member states undertaken in 2003, the three outsiders were ranked high as cooperation partners. The UK representatives were ranked top, followed by representatives from two other large countries, France and Germany, with Sweden and Denmark in fourth and seventh place. A clear majority, 102 of 129, said No when being asked whether the decision to stay outside the euro area was a factor to be considered when choosing cooperation partners (9 said Yes and 8 said Yes regarding euro issues only).²⁴

The euro-outsiders are not treated unfavourably when it comes to important positions in the Parliament or jobs in the Commission. While Swedes were underrepresented in the highest positions in the Commission, Denmark and the UK were overrepresented. In the distribution of rapporteurs in the Parliament, the Danes were slightly underrepresented, the British had average representation and the Swedes were clearly overrepresented.²⁵

Interviews conducted in September 2007 with Danish eurostakeholders, representatives from trade unions and employers' organizations, the government, the central bank and other institutions, show

22. Adler-Nissen (2008). This is consistent with the findings of Miles and Doherty (2005).

23. Lindahl and Naurin (2005).

24. Lindahl and Naurin (2003).

25. Grönberg (2003).

that none of these groups have any immediate problems from Denmark remaining outside the monetary union. It is argued that solutions and practices have been found to deal with the situation. The Danish role as a »model country« has also put Denmark in a favourable position in Europe.²⁶

Enlargement of the monetary union

In principle, accession of new member states into the monetary union has opposing effects on the question of joining for the three outsiders. On the one hand, a larger monetary union would increase the benefits from lower trading costs. It may also make it even more difficult for outsiders to exert any influence from the outside. On the other hand, more countries within the monetary union would also reduce each member state's influence within the union. Overall, one would expect that the effects are positive, but presumably small in light of the relatively small economic importance of the newcomers.

It will take more time than originally anticipated for all the new member states to join the monetary union. Slovenia joined in 2007, Malta and Cyprus in 2008, and Slovakia at the beginning of 2009, but the other new member states are still far away from membership. The slow progress on enlargement of the monetary union strengthens the conclusion that this is unlikely to have much effect on Denmark's, Sweden's and the UK's decisions to join for many years.

Conclusions

The principal macroeconomic argument against joining the monetary union is that a national monetary policy tends to be better tailored to the state of the economy, and can therefore contribute to the stabilization of output, employment and inflation. To the extent that asymmetric shocks imply that the common monetary policy diverges from what would be best for the individual national economy, stabilization is left to national fiscal policy.

Fiscal policy can play an important role in stabilizing the economy. First, as discussed in Chapter 3, most EU countries have fairly large and strong automatic stabilizers. When the automatic stabilizers are allowed to work, fluctuations in the economy are mitigated. Second,

26. Marcussen (2007).

it is possible to stabilise the economy further with the help of countercyclical discretionary fiscal policy. However, in practice there are many limitations that make fiscal policy an imperfect substitute for monetary policy. Discretionary changes in fiscal policy are harder to use in a timely fashion and may involve changes in tax rates and public purchases that have an adverse effect on the efficiency of the economy. Furthermore, fiscal policy is often influenced by political considerations which may run counter to the demands of stabilization. In fact, the experience in the euro area is that discretionary fiscal policy tends to be procyclical rather than countercyclical.

A specific problem for the exercise of fiscal policy in the monetary union is posed by the restrictions laid down in the Stability and Growth Pact. It sets a limit on the size of the public budget deficit. It also sets a limit on the size of the public debt, which further limits budget deficits when the debt exceeds the limit.

An inherent property of monetary union is that differences in inflation rates between countries or regions give rise to differences in real interest rates since nominal interest rates are more or less equal. A country with higher than average inflation will have a lower real interest rate. This will provide additional fuel for inflation and may undermine the competitiveness of its tradeable sector if it does not compensate by a higher rate of productivity increase. Greece, Ireland, Portugal and Spain are examples. The evidence from the euro area shows that it is difficult to correct prices and wages to restore competitiveness and that this can take several years. The weak macroeconomic performance of Germany after 1999 can to some extent be explained by a too high exchange rate to begin with.

The principal macroeconomic argument for joining a monetary union is that nominal exchange rate fluctuations towards the other countries in the union are removed. Nominal exchange rates may vary considerably in the short run with little or no relation to changes in fundamentals such as GDP and interest rates. Nominal exchange rate changes lead to real exchange rate changes in the short run since prices and wages are sticky. Such changes are costly for the economy. While membership in a monetary union could result in more volatility in the exchange rate towards countries outside the union, the three outsiders have almost half of their trade with the euro area. Adoption of the euro is therefore likely to lead to a reduction in nominal and real exchange rate fluctuations which would be beneficial for Sweden

and the UK (but not for Denmark since this country already has a fixed exchange rate against the euro).

The most important gain from the removal of exchange rate fluctuations – indeed from adopting the same currency – is the increase in trade. The evidence in Chapter 5 indicates that monetary union membership has led to a substantial increase in trade, not only between members of the currency union, but also between insiders and outsiders. In addition, a single currency will increase price transparency and should therefore serve to promote competition in goods and service markets.

In view of the arguments for and against joining the monetary union outlined here, what can be said about the performance of Denmark, Sweden and the UK if they had become members of the monetary union in 1999?

Denmark has pegged its exchange rate to the euro and is not reaping the benefits of a national monetary policy. Its monetary policy interest rate has closely followed the ECB rate, except during the recent financial crisis, and its average inflation rate has been the same as that of the euro area. From this we must conclude that Denmark's macroeconomic performance would have been essentially the same if the country had been a member of the monetary union. As for the effect on trade, Denmark has already reaped some gains from its stable exchange rate with the euro, but would probably gain more if it joined.

Sweden has an independent monetary policy with inflation-targeting. The difference between the monetary policy rates of Sweden and the ECB has been fairly small since 1999. This is to be expected since the GDP-gap of Sweden and the euro area have followed a similar pattern and have been of a similar magnitude. Thus, it seems likely that Sweden's macroeconomic performance as a member of the monetary union would have been quite similar to its actual performance.²⁷ However, the evidence in Chapter 5 suggests that foreign trade would have been considerably higher, in particular with the euro area, but probably also with countries outside the monetary union.

The UK economy has become more synchronized with the euro area economy than before, but there are still sizeable differences in the cyclical position at times. This has led to periods with fairly large

27. This is supported by Söderström (2008) who studies how the Swedish economy would have performed with the euro. Söderström finds that GDP growth would have been higher and more volatile and inflation higher. The differences are estimated to be quite small, however.

differences between the UK and the euro monetary policy interest rate, with the UK rate consistently above. For several years, UK inflation was below its target and a lower interest rate would have pushed up inflation, presumably reducing the deviation from target. On the other hand, a lower interest rate might also have stimulated the surge in property prices, most likely making the recent fall in property prices sharper. Overall, the effect of monetary union membership on the macroeconomic performance of the UK would not have been large. As above, the evidence in Chapter 5 suggests that foreign trade would have been considerably higher, in particular with the euro area, but probably also with countries outside the monetary union.

In summary, we conclude that macroeconomic performance would not have been substantially different for Denmark, Sweden and the UK if they had been members of the monetary union from its start. Foreign trade would have increased, however, in particular for Sweden and the UK.

The political influence of Denmark, Sweden and the UK would probably not be much affected, since the loss of political influence due to staying outside seems to have been small. Furthermore, the enlargement of the monetary union would not have much effect on being an outsider.

What can this say about the effects if these countries were to join today? The evidence above indicates that trade would increase, in particular for Sweden and the UK. The effects on macroeconomic performance would depend on the extent of asymmetric shocks in the future and on the ability to handle such shocks. Steadily increasing economic integration between the outsiders and the insiders is likely to further reduce the extent of asymmetric shocks, thereby reducing the loss from giving up a national monetary policy. It is of course hard to predict what kind of shocks that will occur in the future. Moreover, it remains to be seen how the competitiveness problems in the monetary union will be resolved, and what the consequences will be for the countries affected.

As for the ability to handle shocks, the outsiders seem well equipped. At present, Denmark and Sweden are well positioned to use fiscal policy as a substitute – albeit imperfect – for an independent monetary policy, since their public debts are low and they have run public budget surpluses. Above all, they have a good framework for fiscal policy-making. The UK also has a relatively low public debt but a less favourable budget balance position. Furthermore, relative to

most countries in the euro area, the outsiders have relatively flexible labor markets, which makes for easier adjustment when necessary.

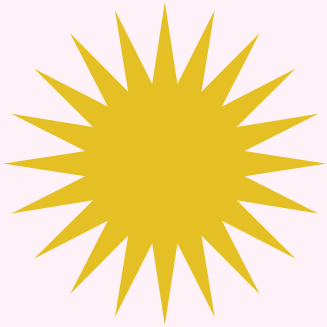
Should Denmark, Sweden and the UK join? With a fixed exchange rate, Denmark has no monetary autonomy. While Denmark retains the option of devaluing its currency in the face of a large negative shock, it also runs the risk of speculation against the krone if the market loses confidence in the regime. Furthermore, trade is likely to increase. Denmark is therefore likely to gain economically by joining the monetary union.

Whether joining the monetary union is economically beneficial for Sweden and the UK depends on what weight is given to the loss of an independent monetary policy in the face of asymmetric shocks on the one hand, and to the likely gain from reduced nominal and real exchange rate fluctuations and increased trade on the other.

REFERENCES

- Adler-Nissen, R. (2008), »The Diplomacy of Opting Out: A Bourdieudian Approach to National Bratsiotis«, i G.J. and C. Martin (1999), *Stabilisation, policy targets, and unemployment. Scandinavian Journal of Economics* 101, 241–256.
- Andersen, T. M, and J. Chiriaeva (2007), »Exchange Rate Pegs, Fiscal Policy and Credibility«, *Open Economics Review* 18, 53–76.
- Bjørnland, H.C. (2006), »Monetary policy and exchange rate overshooting: Dornbusch was right after all«, Mimeo, Norwegian School of Management.
- Calmfors, L., H. Flam, N. Gottfries, J. H. Matlary, M. Jerneck, R. Lindahl, C.N. Berntsson, E. Rainowicz and A. Vredin (1997), *Monetary union – A Swedish perspective*, Kluwer Academic Publishers.
- Calmfors, L, G. Corsetti, M. P. Devereux, S. Honkapohja, G. Saint-Paul, H-W. Sinn, J-E. Sturm, and X. Vives (2007), »The EEAG Report on the european Economy 2007«, Chapter 1. CESifo.
- Cukierman, A. and F. Lippi (2001), »Labor markets and monetary union. A strategic analysis«, *Economic Journal* 111, 541–565.
- Dickens, W., L. Goette, E.L. Groshen, S. Holden, J. Messina, M.E. Schweitzer, J. Turunen, and M. Ward (2007), »How wages change: Micro Evidence from the International Wage Flexibility project«, *Journal of Economic Perspectives*, 21(2), 195–214.
- European Commission (2008), EMU@ten.

- Frankel, J. and A. Rose (1998), »The Endogeneity of Optimal Currency Area Criteria«, *The Economic Journal* 108, 1 009–1 025.
- Grönberg, M. (2003), »Monetary union ryktet och inflytandet«, Mimeo, University of Gothenburg, Department of Political Science.
- Holden, S. (2005), »Monetary regimes and the co-ordination of wage setting«, *European Economic Review* 49, 833–843.
- Holden, S. and F. Wulfsberg (2008), »Downward nominal wage rigidity in the OECD«, *The B.E. Journal of Macroeconomics*, Vol. 8 (2008), Iss. 1 (Advances), Article 15.
- Lindahl, R. and D. Naurin (2003), »Gemenskap, utanförskap och inflytande i EU:s Ministerråd«, Göteborg. CERGU *Working Paper Series*, No. 03:2, Göteborg.
- Lindahl, R. and D. Naurin (2005), »Sweden: The Twin Faces of a euro-Outsider«, *European Integration*, Vol. 27, No. 1, 65–87.
- Marcussen, M (2005), »Denmark and European Monetary Integration: Out But Far From Over«, *European Integration*, Vol. 27, No. 1, 43–63.
- Marcussen, M. (2007), *Handling euro-outsiderness*, Center for Democratic Network Governance, Roskilde University, WP 2007:6.
- Miles, Lee and Gabriel Doherty (2005). »The United Kingdom: A Cautious euro-Outsider«, *European Integration*, Vol. 27, No. 1, 89–109.
- Pisani-Ferry, J, P. Aghion, M. Belka, J. von Hagen, L. Heikensten, and A. Sapir (2008), »Coming of age: Report on the euro area«, Bruegel Blueprint Series.
- Puetter, U. (2004), »Governing informally: the role of the eurogroup in monetary union and the Stability and Growth Pact«, *Journal of European Public Policy* 11:5, 854–870.
- Rigobon, R. (2008), »Exchange rate volatility«, in Durlauf, S.N. and L.E. Blume (eds.), *The New Palgrave Dictionary of Economics*, Vol. 3, 96–99.
- Soskice, D. and T. Iversen (1998), »Multiple wage-bargaining systems in the single european currency area«, *Oxford Review of Economic Policy* 14, 110–124.
- Soskice, D. and T. Iversen (2000), »The non-neutrality of monetary policy with large price or wage setters«, *Quarterly Journal of Economics* cxv, 265–284.
- Söderström, U. (2008), »Re-evaluating Swedish Membership in the monetary union: Evidence from an Estimated Model«, Mimeo, Bocconi University.



Antonio Fatás is the Portuguese Council Chaired Professor of Economics at INSEAD, France. His research covers areas such as the macroeconomic effects of fiscal policy, and the connections between business cycles and growth. He has worked as an external consultant for the IMF, the World Bank, the OECD and the European Commission. Antonio Fatás is the principal author of the chapter on fiscal policy (together with Ilian Mihov).

Harry Flam is Professor of International Economics at the Institute for International Economic Studies, Stockholm University. His research mainly covers the theory of international trade and trade policy, and economic integration. He was a member of the Swedish government's commission that investigated Sweden's accession to the monetary union. He has also been a member of the government's Economic Council. Harry Flam is the principal author of the chapter on trade and foreign direct investment.

Steinar Holden is Professor of Macro and Monetary Policy Issues at the Department of Economics, University of Oslo. His recent research has mostly dealt with wage rigidity and monetary regimes. He has headed three government commissions on issues related to macroeconomics, wage setting and the labor market, and he has twice evaluated the Norwegian monetary policy as member and head of Norges Bank Watch. Steinar Holden is the principal author of the chapter on the three outsiders, Denmark, Sweden and the UK.

Tullio Jappelli is Professor of Economics at the University of Naples Federico II and heads its Center for Studies in Economics and Finance. His main areas of research are savings, liquidity constraints and household portfolio choice. He is Editor of the journal *Economic Policy* and has been a consultant to the World Bank and the European Commission, among others. Tullio Jappelli is the principal author of the chapter on financial integration (with Marco Pagano).

Ilian Mihov is Professor of Economics and the Novartis Chaired Professor of Management and Environment at INSEAD, France, and has a research professorship at DWI in Berlin. His research is primarily in the fields of monetary and fiscal policy, economic growth, trade diversification, and political economy. He is a consultant to the Banque of France on research issues, the Bulgarian central bank and the monetary authority of Singapore. Ilian Mihov is the principal author of the chapter on fiscal policy (with Antonio Fatás).

Cont.

Marco Pagano is Professor of Economics at University of Naples Federico II and heads the Einaudi Institute for Economics and Finance. His research covers macroeconomics, monetary and fiscal policy, and financial markets. He has been a consultant to the Italian ministry of finance, the European Commission, the ECB, and others. Marco Pagano is principal author of the chapter on financial integration (with Tullio Jappelli).

Charles Wyplosz is Professor of International Economics at the Graduate Institute in Geneva, where he is Director of the International Centre for Money and Banking Studies. His main research areas include financial crises, European monetary integration, fiscal policy, economic transition and current regional integration in various parts of the world. He is currently a member of the Group of Independent Economic Advisors to the President of the European Commission, and has been an advisor to the IMF, World Bank, United Nations, among others. Charles Wyplosz is the principal author of the chapter on monetary policy.



