

Chapter
Part
V



The European
monetary union

EU Monetary and Fiscal Policies

Chapter Contents

16.2	The five entry conditions	382
16.3	The Eurosystem	385
16.4	The monetary policy strategy	388
16.5	Independence	392
16.6	Instruments	395
16.7	The first years	398
16.8	Summary	401

Chapter 16	The European monetary union	381
Chapter 17	Fiscal policy and the Stability Pact	413
Chapter 18	The financial markets and the euro	443
Chapter 19	The Eurozone in crisis	475

The European monetary union	381
Fiscal policy and the Stability Pact	413
The financial markets and the euro	443
The Eurozone in crisis	475

Chapter 16



The European monetary union

Chapter Contents

16.1	Principles	382
16.2	The five entry conditions	383
16.3	The Eurosystem	388
16.4	The monetary policy strategy	392
16.5	Independence and accountability	396
16.6	Instruments	399
16.7	The first years, until the Great Crisis	401
16.8	Summary	408

Introduction

The European monetary union functions were established by the Maastricht Treaty. Chapter 14 explains the genesis of this treaty and its key features. Since the adoption of the euro, a number of difficulties have arisen, which should not come as a surprise. Forming a monetary union among highly developed sovereign countries is a first and it is also a complex undertaking. It would have been truly extraordinary to have got it 100 per cent correct right from scratch! Over time, the monetary union is being adapted to deal with problems as they arise and this process will go on for decades to come. This chapter presents the current situation.

Section 16.1 lays out the principles that drove the architecture of the Eurozone, which emphasized price stability and central bank independence. Accordingly, admission to the Eurozone was based on five convergence criteria, which are presented and interpreted in Section 16.2. The central banking system brings together a common central bank, the ECB, and the national central banks. Together they make up the Eurosystem, which is described in Section 16.3. Their governance is presented in Section 16.4, while Section 16.5 explains how independence is guaranteed and how democratic accountability operates. The next section explains how the Eurosystem works and its monetary policy instruments. The last section reviews the experience during the quiet pre-crisis years.

16.1 Principles

The vision of the monetary union reflects its birth as the outcome of a deal between Germany, which agreed to abandon its strong currency, and the other countries, which wished to move away from the Deutschmark-dominated and unstable EMS while keeping exchange rates stable. Highly concerned that the new currency would not be as strong as the mark, Germany requested guarantees. This led to a set of principles.

16.1.1 Price stability

The Maastricht Treaty specifies that the main task of the Eurosystem is to deliver price stability:

The primary objective of the ESCB shall be to maintain price stability. Without prejudice to that objective, it shall support the general economic policies in the Union in order to contribute to the achievement of the latter's objectives.

Article 282-2, Treaty on the Functioning of the European Union

The Treaty does not give an exact definition of price stability. The Eurosystem¹ has chosen to interpret it as follows: 'Price stability is defined as a year-on-year increase in the Harmonized Index of Consumer Prices (HICP)² for the Eurozone of close to but below 2 per cent. Price stability is to be maintained over the medium term.' Many central banks typically announce an admissible range for inflation; the Eurosystem's target is not set in this way but it is commonly understood that the implicit objective is to keep inflation between 1.5 and 2 per cent. The meaning of 'the medium term' is also imprecise, but it is understood to refer to a two- to three-year horizon.

The logic behind the price stability objective is the monetary neutrality principle (Chapter 13): in the long run, monetary policy only impacts inflation. Because inflation is ultimately determined by monetary policy, it is the duty of the Eurosystem to achieve price stability. In the shorter run, monetary policy affects other economic variables, chiefly the economic growth rate and unemployment. Thus, while the Treaty considers price stability a 'primary objective', it stipulates that 'without prejudice to that objective', the Eurosystem may pursue 'secondary objectives'.

These secondary objectives are described above in Delphic terms. The 'general economic policies in the Union' refer to Article 3, which lists many objectives, including 'the sustainable development of Europe based on balanced economic growth and price stability', and more. This leaves the Eurosystem

¹ The Eurosystem is defined below. In brief, it is the central bank.

² The Harmonized Index of Consumer Prices is an area-wide consumer price index. The same method is also used to compute national HICPs.

with quite some leeway to decide its strategy. The hierarchy between price stability and other objectives has become standard among many central banks, with some exceptions, including the USA, which puts employment and price stability on the same level.

16.1.2 Central bank independence

In order to fulfil its main task of delivering price stability, a central bank must be free to operate without outside interference. While, in principle, everyone approves of price stability, some important actors occasionally have second thoughts. In particular, financially stressed governments may come to see the printing press as the least-bad option. Likewise exporting firms, whose competitiveness depends on the exchange rate, frequently ask their central banks to relax monetary policy,³ and they are supported by trade unions, which are concerned with employment. Debtors like inflation for it erases the value of their (non-indexed) liabilities. Financial institutions often make larger profits when liquidity is plentiful. In any democracy, these are formidable coalitions. Experience with high inflation has shown that these effects are temporary – another manifestation of long-term monetary neutrality – while inflation is in fact painful, unfair to the poor and its elimination requires long periods of slow growth and high unemployment. This is why the modern trend of focusing monetary policy on price stability also argues in favour of central bank independence from all segments of society and, in particular, from the political powers.

16.1.3 Fiscal discipline

Even with a strong guarantee of central bank independence, governments may create – intentionally or not – conditions such that monetary policy can be undermined. History shows how to do it. When a government runs budget deficits, it borrows from the financial markets. If the deficits are large enough for long enough, the markets may refuse to offer more loans. This immediately creates a financial crisis. The government can no longer operate, the exchange rate is likely to plummet and the banking system – a big lender to governments – is under threat.

The pressure is now on the central bank: either it creates money to finance the deficit or the country experiences an acute crisis. Citizens flee the domestic currency, which creates an unmanageable situation for the commercial banks. A central bank may turn a blind eye and let the fire consume the economy. Most likely, it caves in and prints money. The result is invariably ‘inflation in the long run’, but in a panic situation the long run comes about extremely swiftly, a matter of weeks rather than months. This is why there can be no central bank independence without fiscal discipline.

In a monetary union this threat is compounded by the fact that the incentives to follow fiscal indiscipline are even stronger than in a purely national setting. Running budget deficits is politically expedient. Spend now, tax later, after the elections, is already a powerful incentive. In a monetary union the incentive becomes: spend now, then get the common central bank to pay for it. This is why the Maastricht Treaty includes a fiscal discipline clause. The resulting Stability and Growth Pact is the subject of the next chapter.

16.2 The five entry conditions

The Maastricht Treaty identified price stability as the overriding objective for the monetary union. This was an explicit condition put forward by Germany, whose commitment to low inflation has been unflinching since it underwent one of history’s worst periods of hyperinflation in the 1920s (Section 14.1.2). Over the previous decades, however, some countries had achieved a high degree of price stability, while others had allowed high inflation rates (Figure 14.4). As we have seen, inflation is ultimately determined by monetary policy. Since, back then, each country had its own central bank, several of which were not independent, inflation differences were not surprising. Exchange rates were adjusted periodically to maintain competitiveness. Now that national exchange rates were to disappear, it was essential that every member country remain competitive by rigorously adhering to the price stability objective.

³ The *IS-MP-IRP* framework of Chapter 13 explains why. Under a flexible exchange rate regime, a monetary relaxation is captured by a downward shift of the *MP* curve, which leads to an exchange rate depreciation.

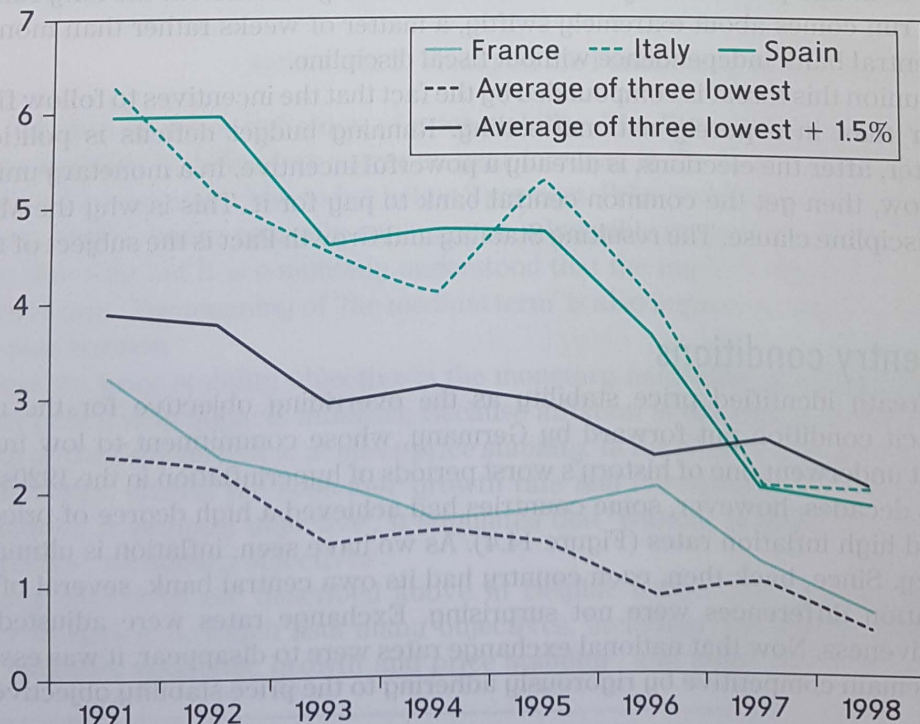
The importance of this requirement is linked to OCA principles and the fact that several criteria were poorly, or not at all, satisfied. Competitiveness was essential to uphold and deepen the two OCA criteria that were best fulfilled. Indeed, the Kenen and McKinnon criteria rest on deep trade integration, which can flourish only if each and every country remains competitive. In addition, price stability was a litmus test of two other OCA criteria. It would be a key signal that the preference for low inflation was hitherto widely shared, as required by the homogeneity of preferences criterion. This, in turn, called upon the countries that had tolerated higher inflation rates to shed old habits in the name of a common destiny. Finally, a loss of competitiveness would lead to a fall in exports, which would be followed irremediably by economic decline. The two remaining OCA criteria, labour mobility and the existence of a transfer system, are those that were the least fulfilled. It means that a country that suffers from a loss in competitiveness would face severe hardship, which would challenge the very existence of the common currency.

With a common central bank carrying out a common monetary policy, inflation has to eventually be the same, or nearly the same, in every member country. But, as we saw in Chapter 14, such a convergence is achieved through a long and painful process symbolized by the Hume principle. This is what the architects of the Maastricht Treaty were keen to avoid. To that effect, it was decided that membership to the monetary union would be restricted to those countries that had demonstrated that they could live according to the guiding principle of price stability set in the Treaty. The coronation theory viewed monetary union membership as the last step of the conversion to price stability. This has led to the adoption of five entry conditions.

16.2.1 Inflation

The first criterion deals directly with inflation. To be eligible for membership of the monetary union, a country's inflation rate should not exceed the average of the three lowest inflation rates achieved by the EU Member States by more than 1.5 percentage points. Figure 16.1 shows how the 'Club Med' countries of southern Europe managed to bring their inflation rates to below the acceptable limit by 1998. Greece (not shown) failed on that criterion.

Figure 16.1 Inflation convergence, 1991–98



Source: Based on data from IMF.

16.2.2 Long-term nominal interest rate

An inflation-prone country could possibly squeeze prices temporarily, on the last year before admission – for example, by freezing administered prices (electricity, transport) – only to relax the effort afterwards. In order to weed out potential cheaters, a second criterion requires that the long-term interest rate should not exceed by more than two percentage points the average rates observed in the three lowest-inflation-rate countries. The reasoning is shrewd. Long-term interest rates mostly reflect markets' assessment of long-term inflation for reasons explained in Box 16.1. Achieving a low long-term interest rate therefore requires convincing naturally sceptical financial markets that inflation will remain low 'for ever'.

Box 16.1 The Fisher principle

The Fisher principle is usually stated as follows: nominal interest rate = real interest rate + expected inflation. Since the real interest rate is reasonably constant and set worldwide, the main driving force determining the long-term interest rate is the expected long-term inflation rate.

This principle can be seen as an implication of some of the tools developed in Chapter 13. The interest rate parity condition links the interest rate to expected exchange rate depreciation:

$$i = i^* + \text{expected exchange rate depreciation}$$

Domestic	Foreign
interest rate	interest rate

Purchasing power parity links the exchange rate to domestic and foreign prices. If the real exchange rate EP/P^* is constant, we have seen that:

$$\text{Exchange rate depreciation} = \pi - \pi^*$$

Domestic	Foreign
inflation rate	inflation rate

This implies that the expected rate of depreciation is equal to the difference between expected domestic inflation and expected foreign inflation.

Combining these two conditions, we find:

$$i = i^* + \text{expected } \pi - \text{expected } \pi^*$$

This relationship says that the nominal interest rate is driven by expected domestic and inflation rates and by the foreign nominal interest rate. Alternatively, it can be rewritten as:

$$i = r^* + \text{expected } \pi$$

where r^* is the foreign real interest rate, that is, the nominal interest rate i^* less expected foreign inflation π^* .

16.2.3 ERM membership

The same concern about a superficial conversion to price stability lies behind the third criterion. Here, the idea is that a country must have demonstrated its ability to keep its exchange rate tied to the currencies of its future monetary union partners long enough without a devaluation. The requirement is that every country must have taken part in the ERM for at least two years without having to devalue its currency.⁴

⁴ The Exchange Rate Mechanism is presented in detail in Chapter 14.

16.2.4 Budget deficit

The three previous criteria aim at demonstrating a country's acceptance of, and ability to achieve, permanently low inflation, but it makes sense to also eradicate the incentives to tolerate high inflation. Mindful of the potentially deleterious effects of fiscal indiscipline on monetary policy (Section 16.1.3), the fourth convergence criterion sets a limit on acceptable budget deficits. But what limit?

Here again, German influence prevailed. Germany had long operated a 'golden rule', which specifies that budget deficits are acceptable only if they correspond to public investment spending (on roads, telecommunications and other infrastructure). The idea is that public investment is a source of growth, which eventually generates the resources needed to pay for the initial borrowing. The German 'golden rule' considers that public investment typically amounts to some 3 per cent of GDP. Hence the condition that budget deficits should not exceed 3 per cent of GDP.⁵

16.2.5 Public debt

Much as inflation can be lowered temporarily, deficits can be made to look good in any given year (for example, by shifting some public spending to next year and some of last year's tax revenues to this year). Thus it was decided that a more permanent feature of fiscal discipline ought to be added. The fifth and last criterion mandates a maximum level for the public debt. Here again, the question was: which ceiling?

Unimaginatively, perhaps, the ceiling was set at 60 per cent of GDP because it was the average debt level when the Maastricht Treaty was being negotiated in 1991. An additional reason was that the 60 per cent debt limit can be seen as compatible with a deficit debt ceiling of 3 per cent, as explained in Box 16.2.

Box 16.2 The arithmetic of deficits and debts

Debts grow out of deficits, but how does the debt/GDP ratio relate to the deficit/GDP ratio? A little arithmetic helps. If total nominal debt at the end of year t is B_t , its increase during the year is $B_t - B_{t-1}$, and this is equal to the annual deficit D_t :

$$B_t - B_{t-1} = D_t \quad (1)$$

The two fiscal convergence criteria refer not to the debt and deficit levels, but to their ratios to nominal GDP Y , denoted as b_t and d_t , respectively. Divide the previous accounting equality by the current year nominal GDP Y_t to get:

$$\frac{B_t - B_{t-1}}{Y_t} = \frac{D_t}{Y_t} \text{ or } b_t - \frac{B_{t-1}}{Y_t} = d_t \quad (2)$$

Then note that

$$\frac{B_{t-1}}{Y_t} = \frac{B_{t-1}}{Y_{t-1}} \cdot \frac{Y_{t-1}}{Y_t} = \frac{b_{t-1}}{1 + g_t}$$

where

$$g_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}} = \frac{Y_t}{Y_{t-1}} - 1,$$

⁵ This entry condition is formally distinct from the same limit prescribed by the Stability and Growth Pact, which is studied in Chapter 17. There is a logical link between the two limits, though: having joined the monetary union, a country is not allowed to let its budget deficit rise again.

where g_t is the growth rate of GDP in year t and therefore:

$$1 + g_t = \frac{Y_t}{Y_{t-1}}$$

We can rewrite the debt growth eqn (2) as:

$$b_t - b_{t-1} = (1 + g_t)d_t - g_t b_t \quad (3)$$

If the debt-to-GDP ratio b is to remain constant, we need to have $b_t = b_{t-1}$, which from eqn (3) implies:

$$d_t = \frac{g_t}{1 + g_t} b_t \quad (4)$$

The fiscal convergence criteria set $d_t = 3$ per cent and $b_t = 60$ per cent. If nominal GDP grows by 5 per cent, eqn (4) is approximately satisfied. The implicit assumption is therefore that real GDP annual growth is about 3 per cent and inflation is 2 per cent, hence a nominal GDP growth rate of 5 per cent.

If the debt level is constant, the debt/GDP ratio declines as the result of GDP growth, the more so the faster nominal GDP grows. This means that some debt increase, and therefore some deficit, is compatible with a constant debt/GDP ratio, and the tolerable deficit is larger the faster nominal GDP grows.

However, according to what constitutes the definition of average, some countries had debts in excess of 60 per cent of GDP, and some much larger. In particular, Belgium's public debt then stood at some 120 per cent of GDP. Yet, by 1991, Belgium had overhauled its public finances and was adamant that it was now committed to adhering to strict budgetary discipline. Even so, it would take a long time to bring its debt to below 60 per cent.⁶ As a founding member of the Common Market in 1957, an enthusiastic European country and a long-time advocate of monetary union, Belgium argued that it could not be left out because of past sins now firmly repudiated. At its request, the criterion was couched in prudent terms, requiring that the debt-to-GDP ratio be either less than 60 per cent or 'moving in that direction'.

For the countries then members of the EU, Figure 16.2 shows the deficits and debts in 1998, the last year before the launch of the monetary union, which is when it was decided whether the entry criteria were being fulfilled. The shaded rectangle shows where countries have strictly fulfilled the two budget criteria. All countries managed to bring their deficits below the 3 per cent threshold, sometimes thanks to accounting trickery.⁷ Only a few, however, could report debts below 60 per cent of GDP. In the end, all were saved by the 'Belgian clause'.

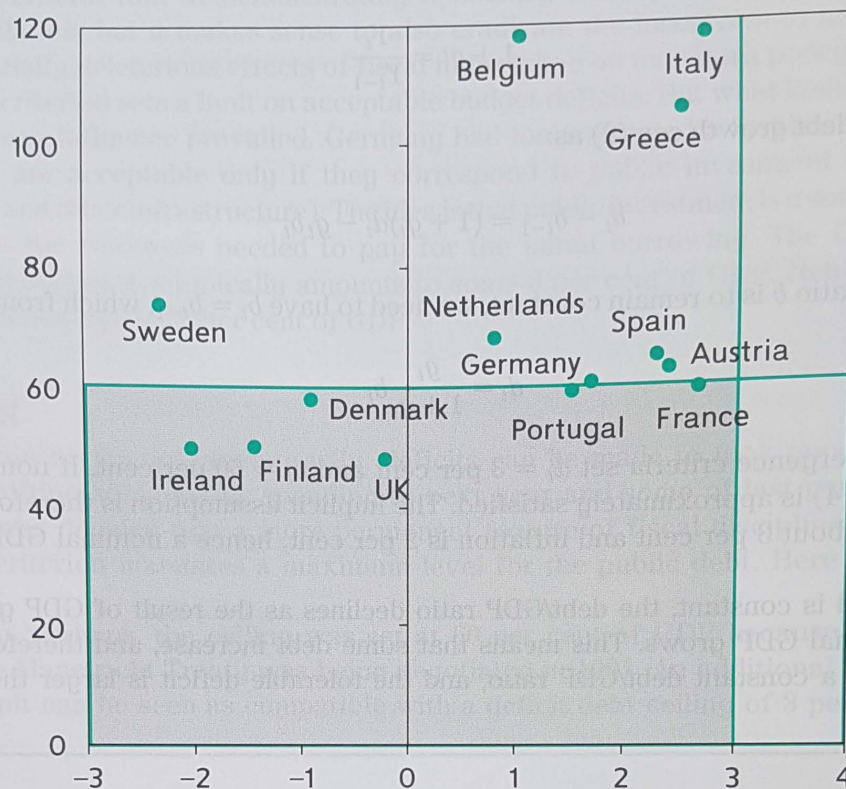
16.2.6 Two-speed Europe

An important aspect of the Maastricht Treaty is that it introduced, for the first time, the idea that a major integration could leave some countries out. The Treaty specifies that all EU member countries are expected to join as soon as practicable. Denmark and the UK were given an exemption. By 2014, 19 of the 27 EU

⁶ Indeed, by 2008, before the collapse of Wall Street, the Belgian debt had been reduced to only 82.6 per cent of GDP.

⁷ France privatized part of its state-owned telecommunications corporation, which provided the revenues needed to achieve the deficit target. Italy collected at the end of 1998 some taxes that would normally have been due in early 1999. Even the German government considered selling gold to pay back its debt but backed off as the Bundesbank publicly attacked the idea.

Figure 16.2 Deficits and debts, 1998



Source: AMECO, European Commission

member countries had adopted the euro; see Figure 16.3. These countries include the 11 original members, which were joined by Greece in 2001, Slovenia in 2007, Cyprus and Malta in 2008, Slovakia in 2009, Estonia in 2011, Latvia in 2014 and Lithuania in 2015.

This 'two-speed' arrangement is not without problems. The endogeneity of the OCA view (see Chapter 15) suggests that the Eurozone countries are becoming increasingly cohesive. Although the crisis has led to divisions among them, the Eurozone member countries have been encouraged to develop their own consultation mechanisms. Eurozone heads of state and government regularly meet when they attend European Council meetings, occasionally overshadowing the full meeting. The ministers of finance of the Eurozone have created the Eurogroup, whose decisions may have an impact on the non-Eurozone member countries.

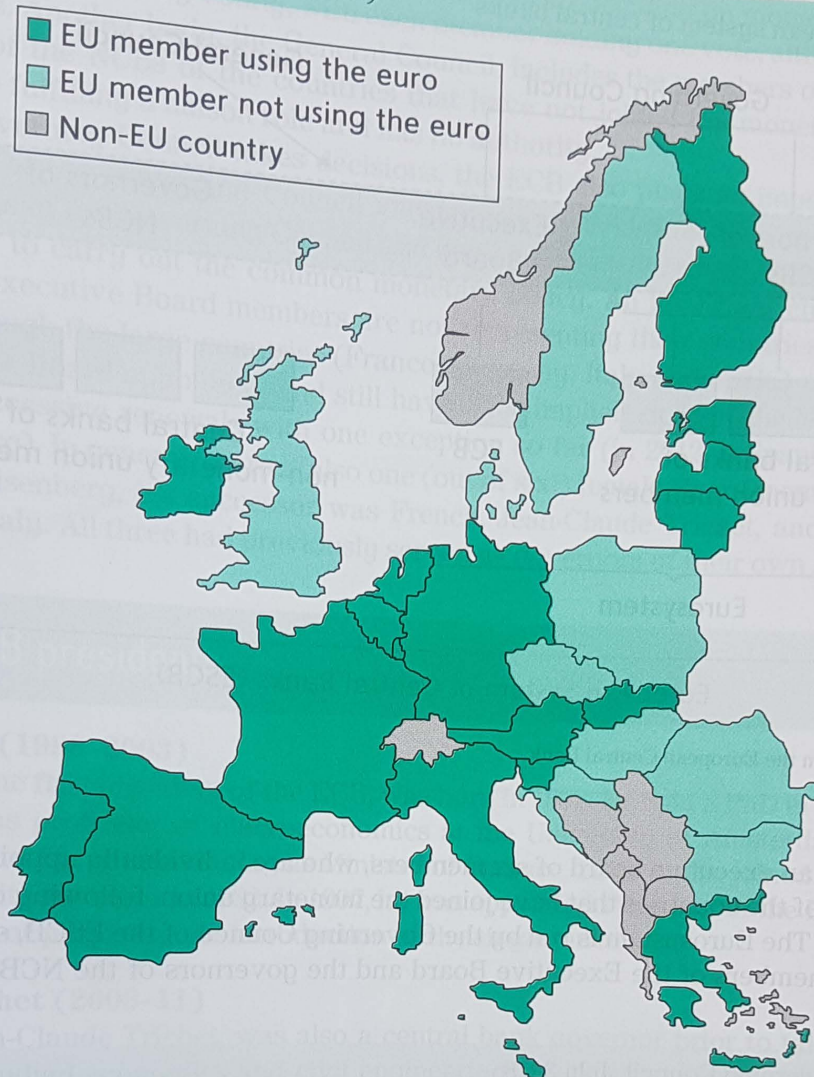
16.3 The Eurosystem

16.3.1 N countries, $N + 1$ central banks

With a single currency there can be only one interest rate,⁸ one exchange rate vis-à-vis the rest of the world, and therefore one monetary policy. Normally this implies a single central bank, but this is not quite the way the euro area was set up! Each member still comes equipped with its own central bank, the last remaining vestige of monetary sovereignty. No matter how daring the founding fathers were, they stopped short of merging the national central banks into a single institution, partly in fear of having to dismiss thousands of employees and partly for political expediency.

⁸ During the crisis, interest rates sharply diverged, however. Still, the Eurosystem sets a single interest rate. This question is taken up in Chapter 19.

Figure 16.3 The Eurozone inside the EU (2018)



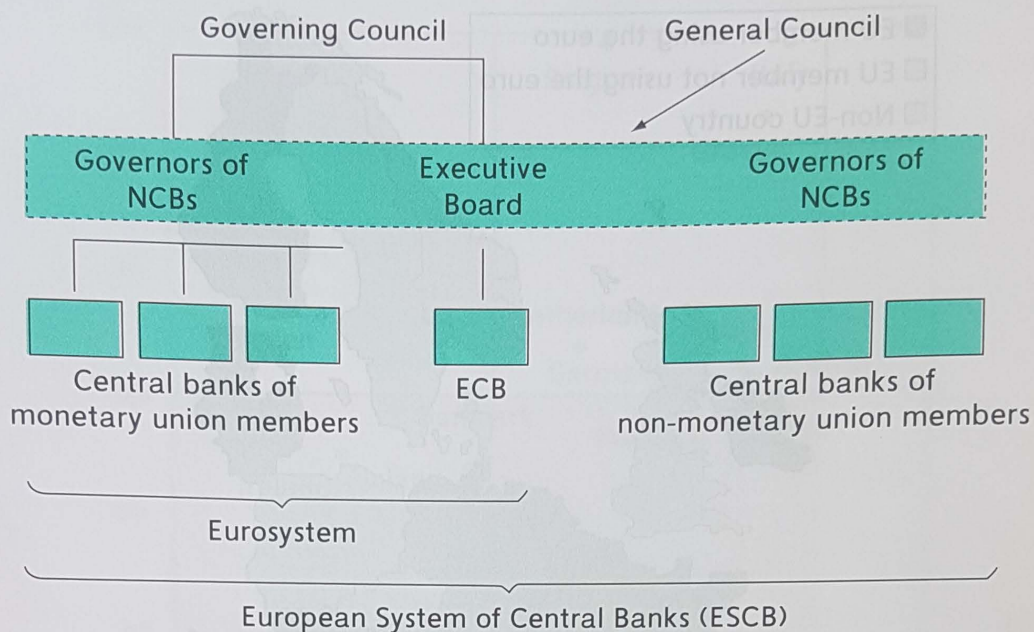
Source: © European Central Bank, Frankfurt am Main, Germany.

The solution was inspired by federal states like Germany and the USA where regional central banks coexist with the federal central bank. But the EU is not a federation, and the word 'federation' is highly politically incorrect in Europe. Inevitably, therefore, the chosen structure is complicated. The newly created European Central Bank (ECB) coexists with the national central banks, one of which did not even exist prior to 1999 since Luxembourg, long part of a monetary union with Belgium, established its own central bank only to conform to the new arrangement.

16.3.2 The system

The European System of Central Banks (ESCB) is composed of the European Central Bank (ECB) and the national central banks (NCBs) of *all* EU Member States (see Figure 16.4). Since not all EU countries have joined the monetary union, a new term, Eurosystem, has been coined to refer to the ECB and the NCBs of Eurozone member countries.⁹ The Eurosystem implements the monetary policy of the Eurozone. If needed, it also conducts foreign exchange operations, in agreement with the finance ministers of the member countries. It holds and manages the official foreign exchange reserves of the EMU Member States. It monitors the payment systems and is involved in the prudential supervision of credit institutions and the financial system.

⁹ For a full and formal description, see the ECB website at <http://www.ecb.int/ecb/html/index.en.html>.

Figure 16.4 The European system of central banks

Source: Based on data from the European Central Bank.

The ECB is run by an executive board of six members, who are individually appointed by the heads of state or governments of the countries that have joined the monetary union, following consultation with the European Parliament. The Eurosystem is run by the Governing Council of the ESCB, shown in Figure 16.5. It comprises the six members of the Executive Board and the governors of the NCBs of monetary union

Figure 16.5 The Governing Council, July 2018

© European Central Bank, Frankfurt am Main, Germany.
<https://www.ecb.europa.eu/ecb/orga/decisions/gen/html/index.en.html>

member countries. The Governing Council is the key authority deciding on monetary policy. Its decisions are, in principle, taken by majority voting, with each member holding one vote, although it seems to operate mostly by consensus. Another body, the General Council, includes the members of the Governing Council and the governors of the NCBs of the countries that have not joined the monetary union. The General Council is in essence fulfilling a liaison role and has no authority.

Although the Governing Council takes decisions, the ECB also plays an important role. Its president chairs the meetings of the Governing Council and reports its decisions at press conferences. The ECB prepares the meetings of the Governing Council and implements its decisions. It also provides instructions to the NCBs on how to carry out the common monetary policy. An important characteristic of the ECB is that formally its Executive Board members are not representing their countries: they are appointed as individuals, even though the large countries (France, Germany, Italy and Spain) all had a national sitting on the first Executive Board appointed, and still have. This implicit right of the large countries has been maintained upon successive renewals with one exception so far (in 2012, a Spaniard was replaced by a citizen of Luxembourg). In general, there is also one (out of six!) female Board member. The first president was Dutch, Wim Duisenberg, his successor was French, Jean-Claude Trichet, and the third president is Mario Draghi from Italy. All three had previously served as governors of their own NCBs (see Box 16.3).

Box 16.3 ECB presidents

Wim Duisenberg (1998–2003)

Wim Duisenberg, the first president of the ECB, was born in 1932. He held a PhD in economics, worked at the IMF and was professor of macroeconomics at the University of Amsterdam before entering politics in the Labour Party and serving as Minister of Finance. Later on, he joined De Nederlandsche Bank, and became its governor in 1982. In 1997, he was appointed President of the European Monetary Institute, in charge of preparing the introduction of the single currency.

Jean-Claude Trichet (2003–11)

His successor, Jean-Claude Trichet, was also a central bank governor prior to taking over the ECB. Born in 1942, he studied economics and civil engineering before attending the elite Ecole Nationale d'Administration. He capped a distinguished career in the French Finance Ministry by becoming head of the Treasury and, in 1993, Governor of the Banque de France. While at the Treasury, he designed the 'franc fort' policy of disinflation.



Mario Draghi (2011–19)

The third president is Mario Draghi, who was Governor of the Bank of Italy from 2005 to 2011. He graduated from the University of Rome and received a PhD in economics from the Massachusetts Institute of Technology. His career was mostly in the Italian Treasury, where he rose to be director general, with a stint in the private sector at Goldman Sachs International. He also taught economics at the University of Florence.

© European Central Bank, Frankfurt am Main, Germany.

16.3.3 Voting rights in the Eurosystem

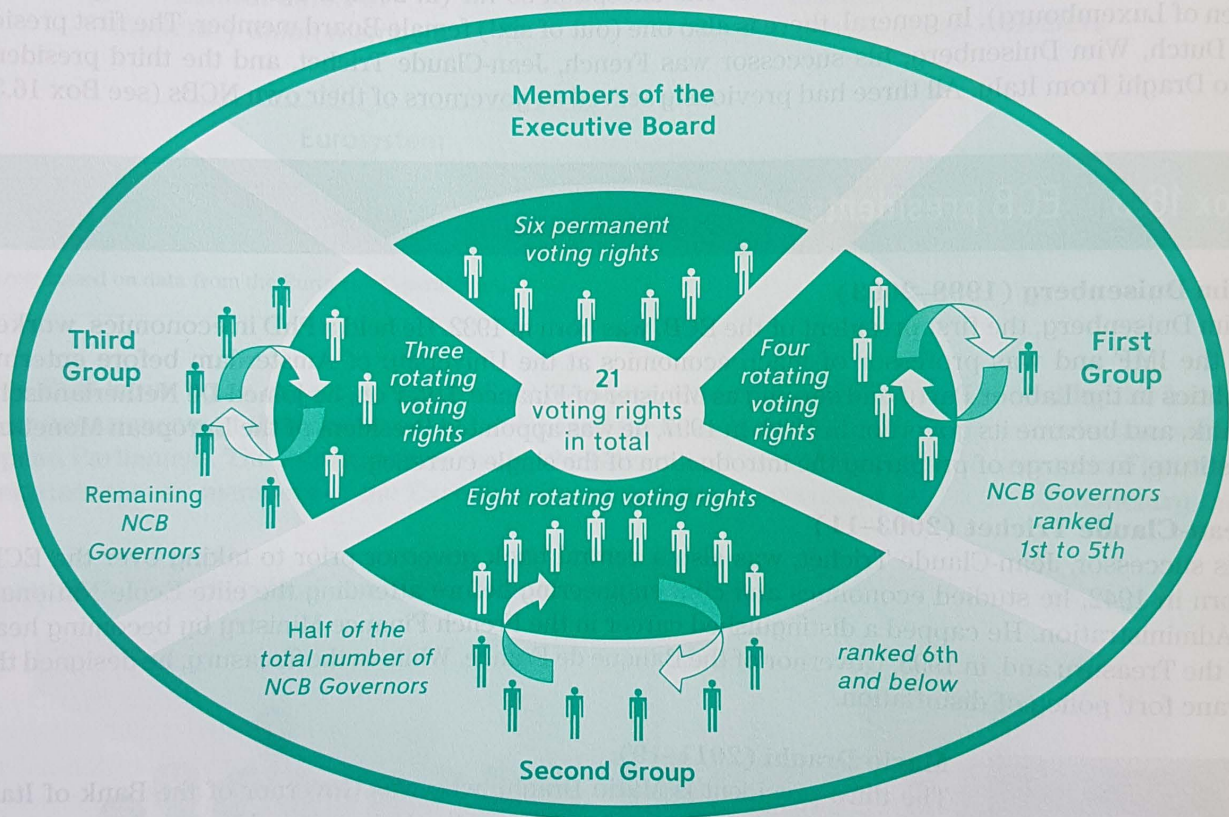
The Governing Council has $6 + N$ members, where N is the number of countries that have adopted the euro. This is a large body, whose size increases when new members join the union. Following the entry of Lithuania in January 2015, the Governing Council now has 25 members. As previously agreed, each member had one voting right until the Council reached 25 members. The system now works on a rotation basis.

An index is computed for each country, based on its GDP (5/6 of the weight) and the size of its financial sector (remaining 1/6). The resulting ranking classifies all countries into two groups:

- 1 The five largest countries (Germany, France, Italy, Spain and the Netherlands) form the first group, with four voting rights.
- 2 The remaining countries make up the second group, with 11 voting rights.

This means that, at any meeting, one large and four of the other countries do not vote. Their NCB governors still attend and contribute to the discussion, however. The rotation takes place each month. Figure 16.6 summarizes the situation. More details are available in the *Monthly Bulletin* of the ECB, May 2003.

Figure 16.6 The rotation system



Source: © European Central Bank, Frankfurt am Main, Germany, *Monthly Bulletin*, May 2003, p. 80.

16.4 The monetary policy strategy

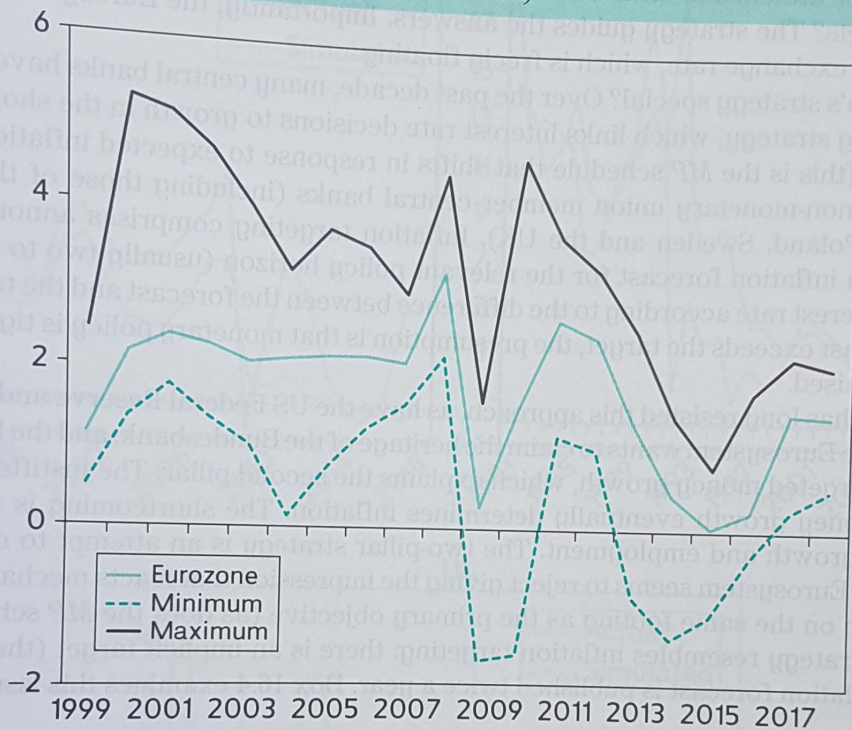
The Eurosystem decides on the interest rate. In the *IS-MP-IRP* framework of Chapter 13, the strategy is captured by the *MP* schedule, which indicates that the central bank leans against the wind, raising the interest rate when the economy booms and lowering it during slowdowns. In Chapter 14, the strategy is complemented by the price stability objective: when inflation rises, the central bank raises the interest rate and the *MP* curve shifts up; when inflation is low, the central bank reduces the interest rate and the *MP* curve shifts down. These are the broad principles, widely shared among central banks. The Eurosystem has developed a detailed strategy to implement these principles.

Before examining the strategy, an important issue needs to be addressed. The Eurozone comprises many countries and it would be extraordinary if the economic situation (inflation, growth, unemployment) were the same everywhere, always. Divergences of economic situations are likely, which underlines the importance of the OCA theory developed in Chapter 15. How can the Eurosystem deal with asymmetries, then? The response is clear: the Eurosystem does not look at individual countries but at the Eurozone as a whole. It monitors overall inflation, overall growth, overall employment, and so on, and studiously avoids

focusing on any one country. In principle, within the Governing Council, NCB governors are not supposed to discuss their own countries. This is logical. From a political viewpoint, taking the needs and desires of individual countries into account would be very divisive because opposing views will always exist. Like a good mother, the ECB cannot have a favourite daughter.

Figure 16.7 shows the overall inflation rate within the Eurozone (looking only at the original 12 members) together with the highest and lowest inflation rate recorded each year among the member countries. It provides a vivid graphical example of the sizeable diversity of economic conditions from one country to another. With low inflation as its primary objective, obviously the Eurosystem cannot have one policy that fits all.

Figure 16.7 Inflation rates, 1999–2018 (per cent per annum)



Source: AMECO, European Commission.

The strategy relies on three main elements: the definition of price stability, and two 'pillars' used to identify risks to price stability.

Price stability is defined by the Eurosystem as an inflation rate of close to, but below, 2 per cent in the medium run. The medium run is not defined but it is understood to mean some two to four years down the road, for reasons explained below. The inflation objective is understood to mean that the Eurosystem wishes to keep inflation between 1.5 and 2 per cent. Figure 16.7 indicates that, so defined, the objective was reached in 2 of the 19 first years. Yet, with few exceptions, the misses were mostly small. On average, Eurozone inflation has been 1.7 per cent.

The first pillar is what the Eurosystem calls 'economic analysis'. It consists of a broad review of the recent evolution of and likely prospects for economic conditions (including growth, employment, prices, exchange rates and foreign conditions). The second pillar, the 'monetary analysis', studies the evolution of various monetary aggregates (M3, in particular) and of bank credit, which, in the medium to long term, moves in proportion to inflation, in line with the neutrality principle. In the words of the Eurosystem, 'these two perspectives offer complementary analytical frameworks to support the Governing Council's overall assessment of risks to price stability. In this respect, the monetary analysis mainly serves as a means of cross-checking, from a medium- to long-term perspective, the short- to medium-term indications coming from economic analysis' (ECB, 2003).

What does this mean in practice? Given that monetary actions affect first growth and employment, with a lag of at least a year, and then inflation, with an additional lag of one or more years, the central bank must anticipate the evolution of the situation at least three years in advance. Importantly, it must act

now on the basis of forecasts, not on the basis of the current situation because it is too late for that. Given that inflation is its primary long-run target, the Eurosystem must take into consideration expected future inflation. Given that its secondary target, roughly growth and employment, is impacted after one year or so, the Eurosystem must also foresee 'economic conditions' over that intermediate horizon. Of course, the associated forecasts must be consistent with each other over time, hence the need for 'cross-checking'.

At the policy meetings of the Governing Council, the Chief Economist – one of the six Executive Board members – presents a broad analysis of the situation, including forecasts of inflation and growth. Monetary conditions – the association between money growth and inflation – are then used to qualify the forecasts and allow the Council to form a view of where inflation is heading. Then the real debate starts: What should be done with the interest rate? Should it be raised because inflation is perceived as excessive? How much weight should be attached to other considerations, such as growth and employment, or the exchange rate and stock markets? The strategy guides the answers. Importantly, the Eurosystem does not take any responsibility for the exchange rate, which is freely floating.

Is the Eurosystem's strategy special? Over the past decade, many central banks have explicitly adopted the inflation-targeting strategy, which links interest rate decisions to growth in the short run and inflation over the longer run (this is the *MP* schedule that shifts in response to expected inflation). In Europe, this is the case of most non-monetary union member central banks (including those of the Czech Republic, Hungary, Norway, Poland, Sweden and the UK). Inflation targeting comprises announcing an inflation target, publishing an inflation forecast for the relevant policy horizon (usually two to three years ahead) and adjusting the interest rate according to the difference between the forecast and the target. For example, if the inflation forecast exceeds the target, the presumption is that monetary policy is tightened, that is, that the interest rate is raised.

The Eurosystem has long resisted this approach, as have the US Federal Reserve and the Bank of Japan. One reason is that the Eurosystem wants to claim the heritage of the Bundesbank, and the Bundesbank did not target inflation; it targeted money growth, which explains the second pillar. The justification for monetary targeting is that money growth eventually determines inflation. The shortcoming is that, in the shorter run, it also affects growth and employment. The two-pillar strategy is an attempt to deal with these two considerations. The Eurosystem seems to reject giving the impression that it acts mechanically and puts the secondary objective on the same footing as the primary objective (as does the *MP* schedule). In practice, the Eurosystem's strategy resembles inflation targeting: there is an implicit target (the definition of price stability) and its inflation forecast is published twice a year. Box 16.4 examines this issue in more detail.

Box 16.4 How different is the ECB?

Inflation-targeting central banks set the short-term interest rate with one eye on inflation forecasts and the other on the expected activity level, measured as the output gap; that is, the deviation of actual GDP from its 'normal' level. This approach – the 'shifting-*MP* curve' – is formalized as the Taylor rule.¹ This rule simply posits that the central bank chooses the actual interest rate as a function of (1) the deviation of inflation from its (implicit or explicit) target; and (2) the output gap, which is the difference between actual and potential GDP, measured as a percentage of potential GDP. Potential GDP can be thought as the trend around which actual fluctuates through business cycles.

Formally, this is written as:

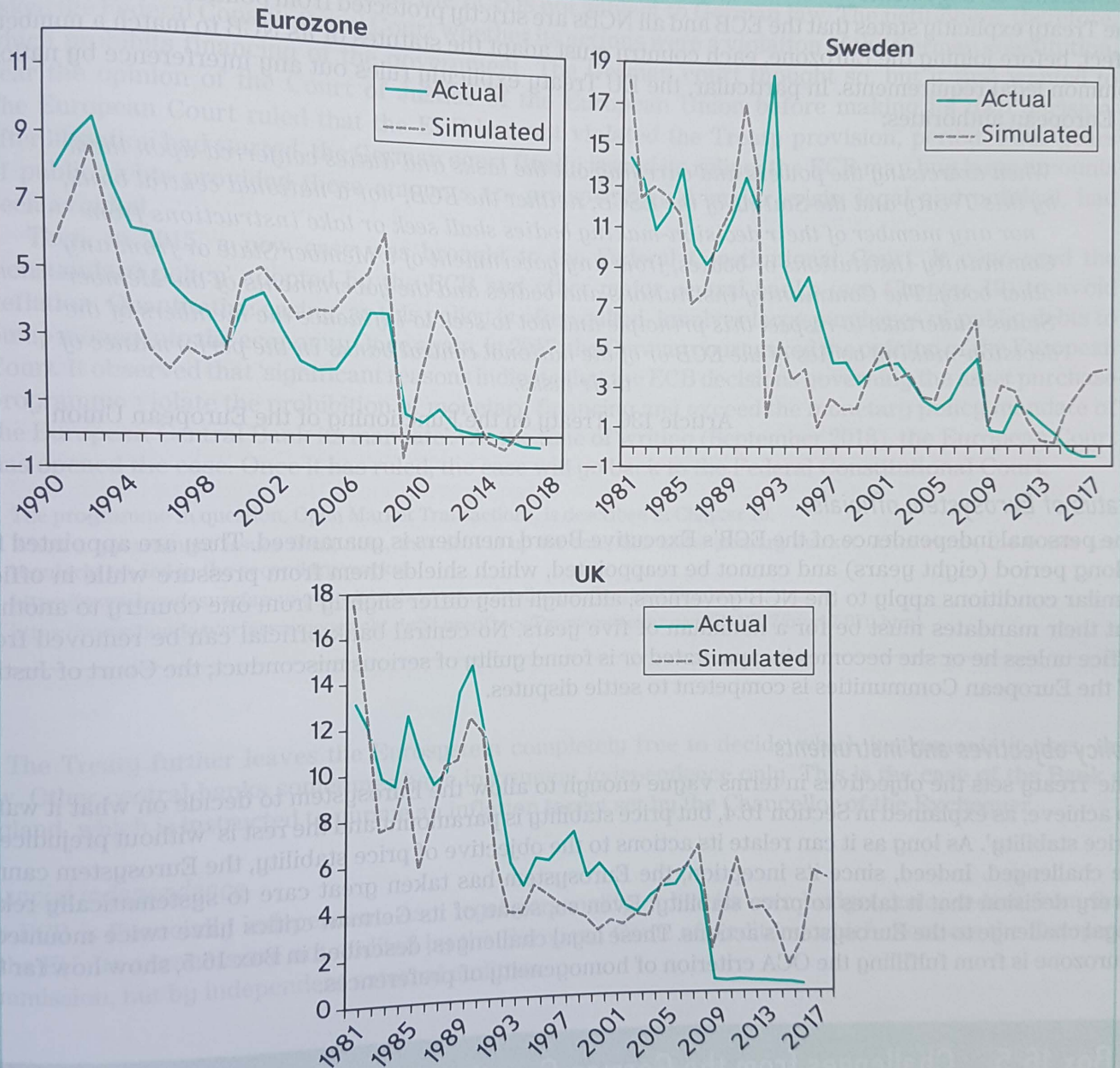
$$i_t = a(\pi_t - \pi^*) + b(y_t - y_t^*)$$

where i_t is the interest rate at time t , π_t is the inflation rate, π^* is the inflation target, y_t is GDP and y_t^* is potential GDP.² The parameters a and b are weights that reflect the relative importance attached by the central bank to its two objectives (b is the slope of the *MP* curve and a tells us how much it shifts in response to inflation).

Figure 16.8 looks at the Eurosystem (and, before 1999, its predecessor, the Bundesbank), the Swedish Riksbank and the Bank of England. For each central bank, it displays two short-term interest rates: the actual rate and the rate that would have been chosen if the central banks had followed the

same Taylor rule.³ We see that central bank behaviour has increasingly conformed to the Taylor rule. This also applies to the Bundesbank until 1999; despite its tough rhetoric, it was an early practitioner of the Taylor rule. We also see that the Eurosystem followed suit and that its actions do not differ from those of explicit inflation-targeters, such as the Riksbank or the Bank of England. Following the global crisis, however, central banks have all behaved somewhat differently, as explained in Chapter 19.

Figure 16.8 Actual and simulated interest rates, 1981–2018



Sources: IMF and *Economic Outlook*, OECD.

- ¹ This formalization was first proposed by John Taylor, a Stanford University economist who has served as Under Secretary of the Treasury.
- ² A more precise description involves the forecasts, not the current values, of inflation and the output gap. This detail is ignored here.
- ³ The weights are $a = 1.5$ on inflation and $b = 0.5$ on the output gap. In the simulation that follows, we use actual inflation and output gaps. We also 'smooth' the simulated interest rate, as central banks seem to do, by computing it as a weighted average of the previous year's interest rate and the interest rate predicted by the Taylor rule, putting equal weights on each.

16.5 Independence and accountability

16.5.1 Independence

The importance of central bank independence is stressed in Section 16.1.2. The Eurosystem is characterized by a high degree of independence. This is achieved through a number of characteristics specifically crafted to that effect.

Institutional arrangements

The Treaty explicitly states that the ECB and all NCBs are strictly protected from political influence. To that effect, before joining the Eurozone, each country must adapt the statutes of its NCB to match a number of common legal requirements. In particular, the EU Treaty explicitly rules out any interference by national or European authorities:

When exercising the powers and carrying out the tasks and duties conferred upon them by this Treaty and the Statute of the ESCB, neither the ECB, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body. The Community institutions and bodies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the ECB or of the national central banks in the performance of their tasks.

Article 130, Treaty on the Functioning of the European Union

Status of Eurosystem officials

The personal independence of the ECB's Executive Board members is guaranteed. They are appointed for a long period (eight years) and cannot be reappointed, which shields them from pressure while in office. Similar conditions apply to the NCB governors, although they differ slightly from one country to another, but their mandates must be for a minimum of five years. No central bank official can be removed from office unless he or she becomes incapacitated or is found guilty of serious misconduct; the Court of Justice of the European Communities is competent to settle disputes.

Policy objectives and instruments

The Treaty sets the objectives in terms vague enough to allow the Eurosystem to decide on what it wants to achieve, as explained in Section 16.4, but price stability is paramount and the rest is 'without prejudice to price stability'. As long as it can relate its actions to the objective of price stability, the Eurosystem cannot be challenged. Indeed, since its inception, the Eurosystem has taken great care to systematically relate every decision that it takes to price stability. Even so, some of its German critics have twice mounted a legal challenge to the Eurosystem's actions. These legal challenges, described in Box 16.5, show how far the Eurozone is from fulfilling the OCA criterion of homogeneity of preferences.

Box 16.5 Challenges from the German Constitutional Court

The main risk to central bank independence is that it could be coerced by government into excessive money creation, a threat to price stability (see Box 15.2). During the Eurozone crisis, like many other central banks, the Eurosystem has taken bold new steps. In particular, it has created previously unheard of quantities of money and even committed to supporting the market value of public debts of crisis countries under combined IMF and European support.¹ A number of German legal scholars have taken the view that these actions bring the Eurosystem far too close to governments and thus threaten price stability. They have asked the German Constitutional Court to decide whether these

actions violate the German constitution (the so-called primary law). The Eurosystem is strictly prohibited from financing governments but it is explicitly allowed to buy public debts on the so-called secondary market.²

After more than one year of deliberation, the Court issued an ambiguous decision in February 2014: 'Subject to the interpretation by the Court of Justice of the European Union, the Federal Constitutional Court considers the . . . decision incompatible with primary law. . . . Another assessment could, however, be warranted if the . . . decision could be interpreted in conformity with primary law.'³

As an international organization, the ECB is not subject to German law. The petitioners, therefore, asked the Federal Constitutional Court whether its actions were a violation of the German constitution, which prohibits financing of the government. The German court thought so, but it first wanted to hear the opinion of the Court of Justice of the European Union before making its own decision. The European Court ruled that the ECB had not violated the Treaty provision, period. Four years after litigation had started, the German court finally issued its ruling: the ECB may buy large amounts of public debts provided these amounts are pre-specified. A major crisis, legal and political, had been avoided.

Then, in 2015, a new case was brought to the Federal Constitutional Court. It concerned the 'nonstandard policy' adopted by the ECB and other major central banks (see Chapter 19) to avoid deflation. Quantitative easing, as this policy is often called, involves large purchases of public debts to pump money into the economy. Once again, in 2017, the German court asked the opinion of the European Court. It observed that 'significant reasons indicate that the ECB decisions governing the asset purchase programme violate the prohibition of monetary financing and exceed the monetary policy mandate of the European Central Bank its mandate'.⁴ At the time of writing (September 2018), the European Court has opened the case. Once it has ruled, the case will go back to the Federal Constitutional Court.

¹ The programme in question, Open Market Transactions, is described in Chapter 19.

² When a government issues fresh debt, that debt is up for sale; this is the primary market. Afterwards, the bonds are regularly traded in the secondary market.

³ <https://www.bundesverfassungsgericht.de/pressemitteilungen/bvg14-009en.html>.

⁴ <https://www.bundesverfassungsgericht.de/SharedDocs/Pressemitteilungen/EN/2017/bvg17-070.html>.

The Treaty further leaves the Eurosystem completely free to decide which instruments it uses, and how. Other central banks sometimes have instrument independence only. This is the case of the Bank of England, which is instructed to pursue an inflation target set by the Chancellor of the Exchequer.

Financial independence

The ECB is financially independent. As a legal personality, it has its own budget, independent from that of the EU. Its accounts are not audited by the European Court of Auditors, which monitors the European Commission, but by independent external auditors.

16.5.2 Accountability

Monetary policy affects citizens of the monetary union in a number of ways. The interest rate directly impacts on the cost of borrowing and on the returns from saving; the exchange rate, which is affected by the interest rate (see Chapter 13), directly impacts on the competitiveness of firms and on the purchasing power of citizens. In effect, by granting independence to their central bank, the citizens delegate a very important task to a group of individuals who are appointed, not elected, and who cannot be removed unless they commit grave illegal acts. In a democratic society, delegation to unelected officials must be counterbalanced by democratic accountability.

Democratic accountability is typically exercised in two ways: reporting and transparency. Formally, the Eurosystem operates under the control of the European Parliament. Its statutes require that an annual report be sent to the Parliament, as well as to the Council and the Commission. The report is debated by

Parliament. In addition, the Parliament may request that the President of the ECB and the other members of the Executive Board testify to the Parliament's Economic and Monetary Affairs Committee.¹⁰ In practice, the President appears before the committee every quarter and the members of the Executive Board also do so quite often. In addition, the President of the EU Council and a member of the European Commission may participate in the meetings of the Governing Council, but without voting rights.

At the end of the day, the question is whether the Eurosystem, and the ECB in particular, is subject to effective control by elected officials. Beyond the formal requirements, so far at least, the European Parliament has never really challenged the ECB. The quarterly testimonies of the ECB President in front of the relevant European Parliament committee, aptly called 'Monetary Dialogue', are almost never even vaguely controversial and, when they are, the MPs soon publicly disagree among themselves. Divide and conquer.

16.5.3 Transparency

Transparency contributes powerfully to accountability (see Box 16.6). By revealing the contents of its deliberations, a central bank conveys to the public (the media, the financial markets and independent observers) the rationale behind and difficulties faced by its decisions. Currently, the President of the ECB holds a press conference immediately after the policy-setting meeting to present its decisions in highly standardized terms. Table 16.1 shows how major central banks reveal the work of their decision-making committee meetings. Several of them publish the committee meeting's minutes within a month, but since they can be heavily edited, minutes are not necessarily very informative. Very few (the US Federal Reserve and the Bank of Japan) publish extensive records of the discussion, but with very long delays, which makes the publication irrelevant except for historical purposes. Many central banks report on individual votes, which is a clear way of indicating how certain policy-makers feel about their collective decisions. The Eurosystem is almost alone in doing none of that. It considers that revealing individual votes could be interpreted in a nationalistic manner that does not, in fact, correspond to the thinking of members of the Governing Council who are duty bound to look only at the Eurozone as a whole.

Table 16.1 Provision of information on monetary policy meetings

	Public debt	ESCB	Bank of Japan	Bank of England	Bank of Canada	Swedish Riksbank
Interest-rate decision immediately announced	Yes (after 1994)	Yes	Yes	Yes	Yes	Yes
Supporting statement providing some rationale for change	Yes	Yes	Yes	Sometimes	Yes	Yes
Release of minutes	5–8 weeks ^a	No	1 month	13 days	n.a.	2–4 weeks
Official minutes provide full details of:	Yes	No	Yes	Yes	n.a.	No
Internal debate	Yes	No	No	Yes	No	No
Individuals' views						
Verbatim records of MP meetings are kept	No	Yes	No	No	No	Yes
Verbatim records released to the public after:	5 years	n.a.	10 years	n.a.	n.a.	n.a.

^a The minutes are released after the following FOMC meeting.

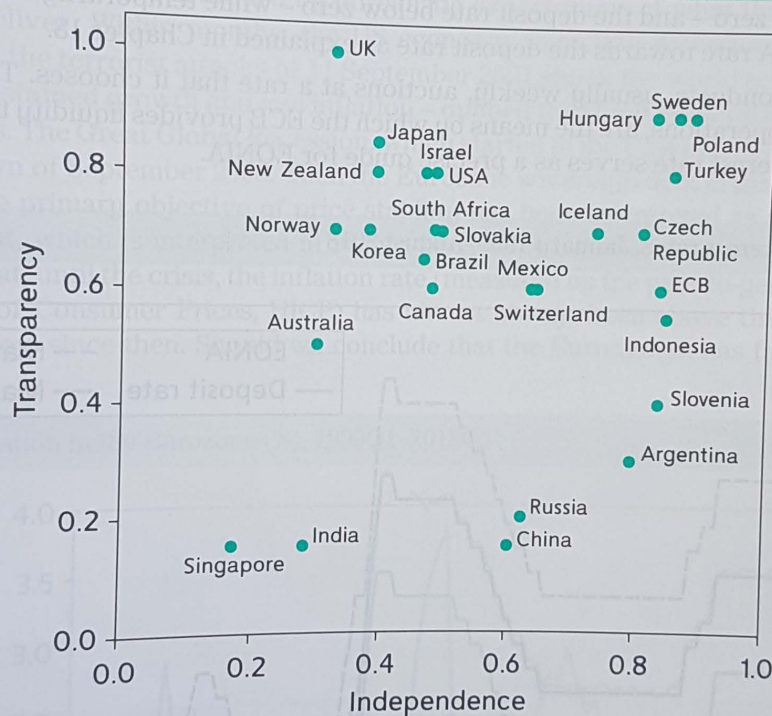
Source: Blinder et al. (2001).

¹⁰ The European Parliament may not order NCB governors to testify because NCBs are not European institutions.

Box 16.6 Independence and transparency

In principle, the more independent is a central bank, the more accountable it should be, and transparency is one key element of accountability. Since there is mounting evidence that inflation tends to be lower where central banks are more independent, a good central bank should be very independent and very transparent. Using legislation and other information, a number of studies provide quantitative estimates of central bank independence and transparency. The numbers are inevitably arbitrary but nevertheless plausible. An example is presented in Figure 16.9, which looks at 29 countries around the world. It suggests that the ECB is indeed very independent but ranks only 17th as far as transparency is concerned. Note that there is no apparent link between independence and transparency.

Figure 16.9 Independence and transparency indices, 2008



Source: Based on data from Crowe and Meade (2008).

At the time of writing, however, the Eurosystem has signalled its intention to publish 'accounts' of the deliberations of the Governing Council as of 2015.

16.6 Instruments

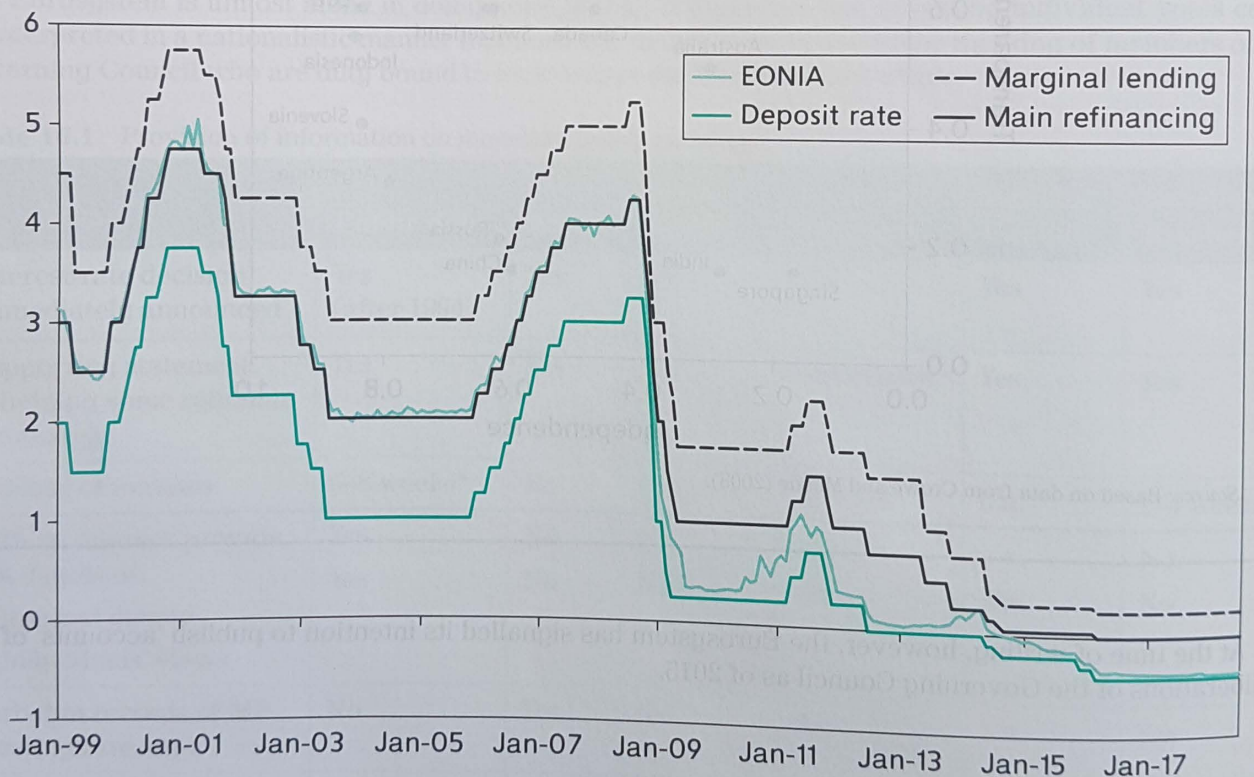
In order to meet its objectives, any central bank must use some instrument to affect aggregate demand. In the *IS-MP-IRP* framework, we assume that they use the interest rate. This is indeed what they usually do as they seek to influence the cost of credit. Like most other central banks, the Eurosystem uses the short-term interest rate. The reason is that central banks have a monopoly on the supply of cash. Very short-term assets – 24 hours or less – are very close to cash and, therefore, can be controlled by central banks with a high degree of precision. Changes in the short-term interest rate, in turn, have a knock-on effect on longer-term interest rates (and thus on the cost of credit), on asset prices (and thus on capital costs of firms) and on

the exchange rate (and thus on foreign demand for domestic goods and services). These effects, however, are not very precise as they depend on market expectations of future inflation and future policy actions. Expectations are beyond the direct control of the central bank but being clear about longer-run aims and intentions is part of the art of central banking – and is an additional reason for transparency.

The Eurosystem focuses on the overnight rate EONIA (European Over Night Index Average). This interest rate corresponds to lending and borrowing among banks from one evening to the next morning on what is called the interbank market. Control over EONIA is achieved in two ways:

- 1 The Eurosystem creates a ceiling and a floor for EONIA by maintaining open lending and deposit facilities at pre-announced interest rates. The marginal lending facility allows banks to borrow directly from the Eurosystem (more precisely, from their NCBs) at the corresponding rate. It is a ceiling because no bank would want to pay a higher rate on the overnight market. Similarly, the Eurosystem accepts deposits from banks at its pre-announced deposit rate. This is a floor since no bank would ever agree to lend at a lower rate. Figure 16.10 shows that, indeed, EONIA has moved within the corridor thus established, at least up until 2012. Then, facing the crisis, the Eurosystem has brought its main refinancing rate to zero – and the deposit rate below zero – while temporarily changing its procedure, pressing the EONIA rate towards the deposit rate as explained in Chapter 18.
- 2 The Eurosystem conducts, usually weekly, auctions at a rate that it chooses. These auctions, called main refinancing operations, are the means by which the ECB provides liquidity to the banking system and the chosen interest rate serves as a precise guide for EONIA.

Figure 16.10 ECB interest rates, January 1999–August 2018



Source: Based on data from European Central Bank, *Monthly Bulletin*.

How does liquidity flow from the Eurosystem to all corners of the Eurozone banking system? As noted above, the Eurosystem organizes auctions on a regular basis. Each NCB collects bids from its commercial banks and passes the information to the ECB. The ECB then decides which proportion of bids will be accepted and instructs the NCBs accordingly. The commercial banks can then disseminate the liquidity on the interbank market. It does not matter where the initial injection is made: since there is a single interest

rate throughout the Eurozone, the area-wide interbank market ensures that money is available where needed. Again, this has not been the case during the crisis.

16.7 The first years, until the Great Crisis

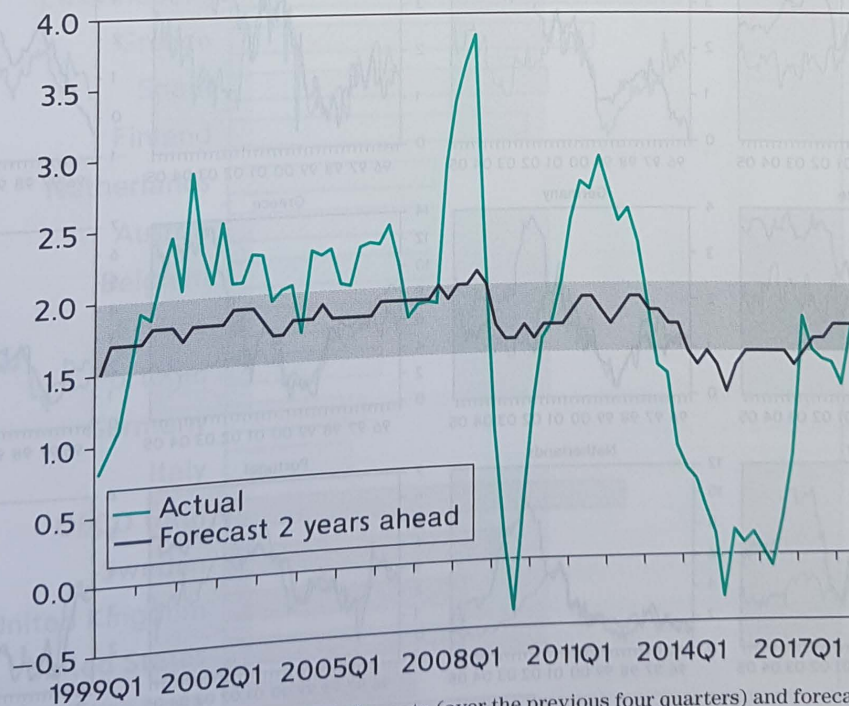
This section looks at how the Eurozone has operated since its creation. Because the crisis has been so unusual, we defer its study until Chapters 18 and 19. Here we just look at the 'normal' pre-crisis years.

16.7.1 Inflation

When the euro was launched in January 1999, inflation was very low, partly because all member countries had been working hard at meeting the Maastricht convergence criteria presented in Section 16.2. Soon thereafter, oil prices rose threefold in 2000. An oil shock means both more inflation and less growth, a classic dilemma that all central banks fear. Simultaneously, stock markets worldwide fell, marking the end of a long-lasting financial bubble fed by unrealistic expectations of what the information technology revolution could deliver. Within months, the US economy went into recession, and Europe's economy slowed down. Then, the terrorist attacks of 11 September 2001 shook the world economy. There followed a smooth period of sustained growth and low inflation – dubbed the Great Moderation – until oil prices again rose to record levels. The Great Global Recession, which started in the USA in mid-2007, culminated with the Wall Street meltdown of September 2008. Then the Eurozone sovereign debt crisis came about in late 2009.

As indicated, the primary objective of price stability has been interpreted as an inflation rate close to but below 2 per cent, which is interpreted in Figure 16.11 as the shaded area between 1.5 and 2 per cent. The figure shows that, until the crisis, the inflation rate (measured by the year-to-year increase in the official Harmonized Index of Consumer Prices, HICP) has almost always been above the 2 per cent ceiling, and mostly quite far below since then. Should we conclude that the Eurosystem has failed on its key mission?

Figure 16.11 Inflation in the Eurozone (%), 1999Q1–2018Q2



Note: The figure shows for each quarter the actual inflation rate (over the previous four quarters) and forecasted inflation over a two-year horizon, computed by the ECB as the average of forecasts produced by professional forecasters.

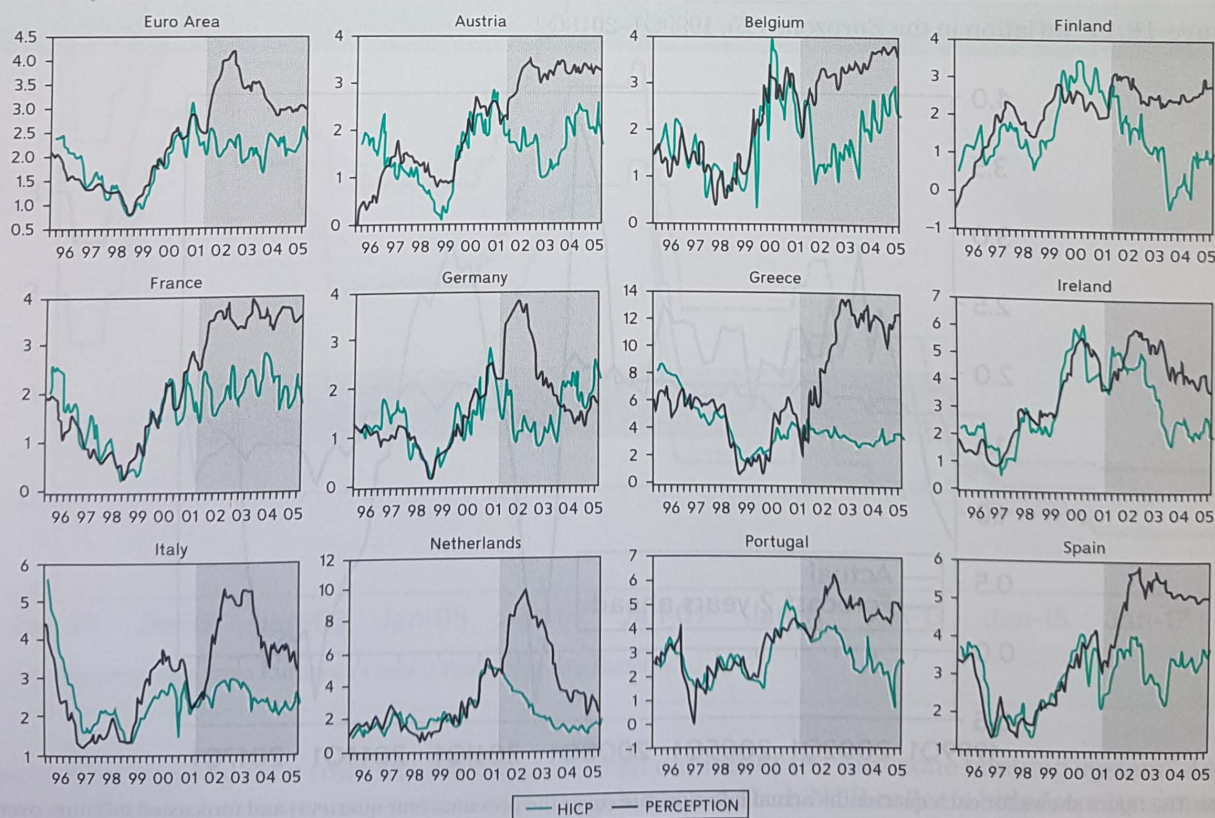
Sources: Based on data from IMF and *Survey of Professional Forecasters*, ECB.

Maybe, but one can argue that, until late 2007, the inflation rate has remained quite close to 2 per cent. One can also claim that what matters are not quarter to quarter fluctuations in actual inflation but the perception by the public, for example inflation expectations. An example is provided by the poll of professional forecasters conducted by the ECB every three months. The figure indicates that professional forecasters brush off quarter-to-quarter fluctuations and remain convinced that the Eurosystem will bring inflation inside the shaded area within two years (and they are quite systematically wrong!). That inflation expectations are 'anchored' to the policy objective suggests that the Eurosystem's credibility remains high, irrespective of recurrent misses. An alternative interpretation is that it is impossible to control inflation precisely, which is why the Eurosystem insists that it intends to reach its objective in the medium run. If we look at averages over many years – the long run – average inflation has been 2.1 per cent over the period from 1999 to 2007, and 1.7 per cent for the whole period 1999–2018. Finally, it is worth noting that, since the Second World War, no member country – including Germany – has enjoyed such a long period of such low inflation. It is surprising, therefore, that in nearly every country a large number of people are convinced of the opposite, namely, that the adoption of the euro has resulted in inflation. This phenomenon is discussed in Box 16.7.

Box 16.7 For the public, inflation is sharply up

When euro coins and banknotes were introduced in early 2002, a number of retailers rounded prices, unsurprisingly mostly upwards. This created a perceived jump in the price level. The jump has been confirmed by HICP measures but its amount – about 0.5 per cent – is trivially small in comparison with public perception. Figure 16.12 shows actual inflation as measured by the HICP and an estimate of perceived inflation by citizens. Not only is the gap large in the months following the introduction of

Figure 16.12 Inflation in the Eurozone: measured vs. perceived



Source: Aucremanne et al. (2007).

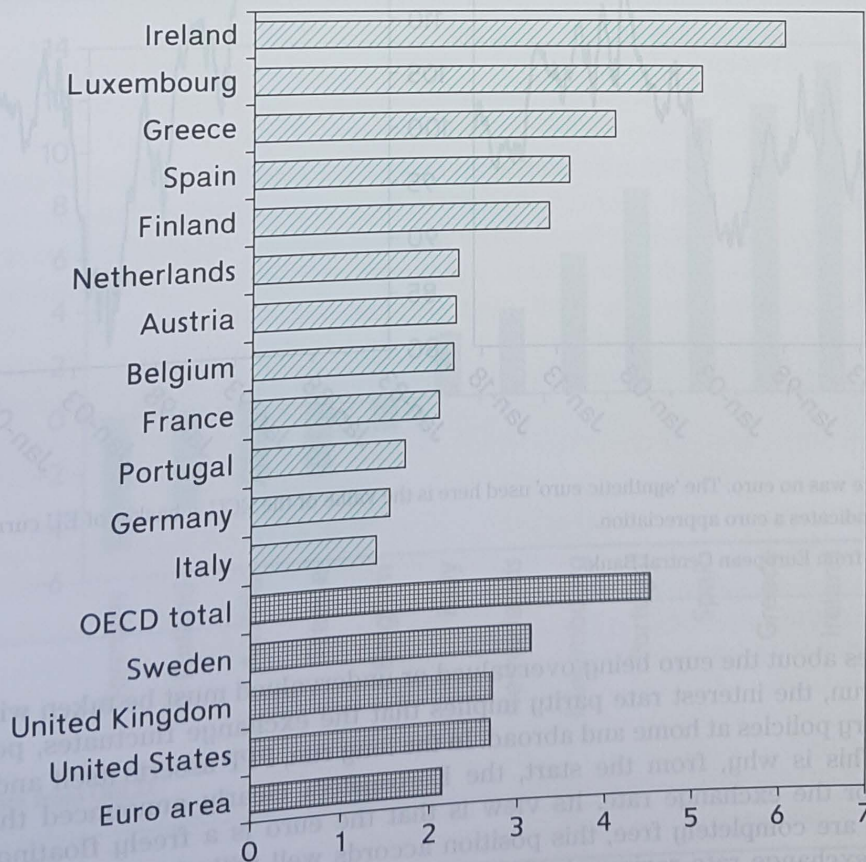
euro notes and coins, but it had not disappeared several years later. Public opinion polls keep revealing that Eurozone citizens believe that the euro has been a major source of high and enduring inflation. In fact, many people believe that the official measure of inflation is deeply flawed since it is much lower than what 'they see'.

Many studies have been conducted to ascertain that the official index is not flawed and to try to explain why perceptions can systematically differ from 'facts'. One explanation is that rounding up has mostly affected cheap goods (an increase in €0.50 for a cup of coffee that costs €1.50 is indeed a 33 per cent increase) that people purchase frequently, which keeps reminding them of the jump. Another explanation is that people still evaluate prices by computing their value in the old currency (liras, francs, pesetas, etc.). Not only is it a long time since that currency was used, but people also appear to make rounding-up errors. In truth there is still no satisfactory explanation of the phenomenon.

16.7.2 Growth

Until the crisis, growth was generally slow in the Eurozone; of course, the situation was disastrous afterwards. This has prompted criticism of the Eurosystem, including by some member governments. The criticism may be unfair for the pre-crisis years. To start with, the neutrality principle says that monetary policy cannot have long-lasting effects on economic growth. In addition, while growth has been slow on average, this has not been the case in every Eurozone country. Some countries have even grown very fast, as Figure 16.13 shows, although many of these countries were those worst hit by the crisis after 2008, which has led critics to blame the Eurosystem for 'excessive growth' that ended badly. The growth rate of

Figure 16.13 Average annual GDP growth rate (%), 1999–2008



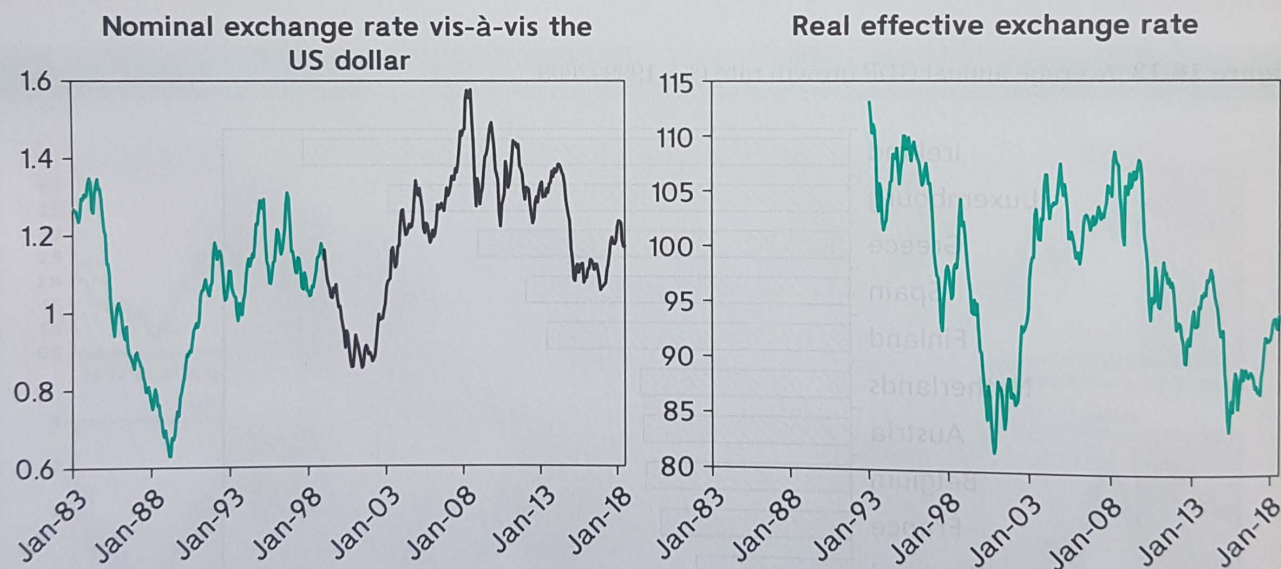
Source: Based on data from *Economic Outlook*, OECD.

the overall Eurozone is low because some of the largest members – chiefly Germany and Italy, with France only slightly better – have managed a disappointing performance. The Eurosystem has argued that this performance is not the result of an over-restrictive stance on monetary policy. It has a point.

16.7.3 The exchange rate

Early on, the Eurosystem faced a vexing issue. Just when the euro was launched in early 1999, the dollar started to rise vis-à-vis all major currencies, including the euro and, to a lesser extent, the pound sterling. Given that the US dollar has long been the world's standard, this situation was generally interpreted as meaning that the new currency was weak. This created the impression that the Eurosystem was unable to deliver the strong currency that had been predicated upon its price-stability commitment, following the PPP logic presented in Chapter 13. Then, from late 2002 onwards, the value of the dollar started to fall. This led to complaints that the euro was overvalued and hurting European exporters. Yet, as the left-hand chart in Figure 16.14 shows, the movements of the dollar/euro exchange rate since 1999 – the black portion of the curve – have not been particularly out of step with the past, except that there is discernible upward trend. We know from Chapter 13, however, that nominal exchange rates compensate inflation differentials in the long run (PPP). We also know that bilateral rates fail to acknowledge the diversity of trade partners. The solution is to look at the real effective exchange rate, which is displayed in the right-hand chart (the data is available only from 1993). It shows that the real effective exchange rate has fluctuated around a flat trend. The Eurozone's competitiveness has been maintained.

Figure 16.14 The dollar/euro exchange rate, January 1983–June 2014



Note: Before 1999, there was no euro. The 'synthetic euro' used here is the value of the ECU, a basket of EU currencies. An increase of the index indicates a euro appreciation.

Source: Based on data from European Central Bank.

Thus, the debates about the euro being overvalued or undervalued must be taken with a grain of salt. True, in the short run, the interest rate parity implies that the exchange fluctuates, possibly widely, in response to monetary policies at home and abroad. In the long run, PPP asserts itself and competitiveness is re-established. This is why, from the start, the Eurosystem clearly announced that it would take no responsibility for the exchange rate. Its view is that the euro is a freely floating currency. Since capital movements are completely free, this position accords well with the impossible trinity principle. The discussion of exchange rate regimes in Chapter 13 suggests that very large and relatively closed economies, like the Eurozone, have little interest in stabilizing their exchange rates. This choice may

occasionally result in temporary under- or over-valuations, a normal implication of a floating exchange rate. In addition, the much-discussed exchange rate between the euro and the dollar is driven by both US and European events. Is it the euro that is too strong or the dollar that is too weak? Or the other way round? Undoubtedly, this debate will go on for many years to come.

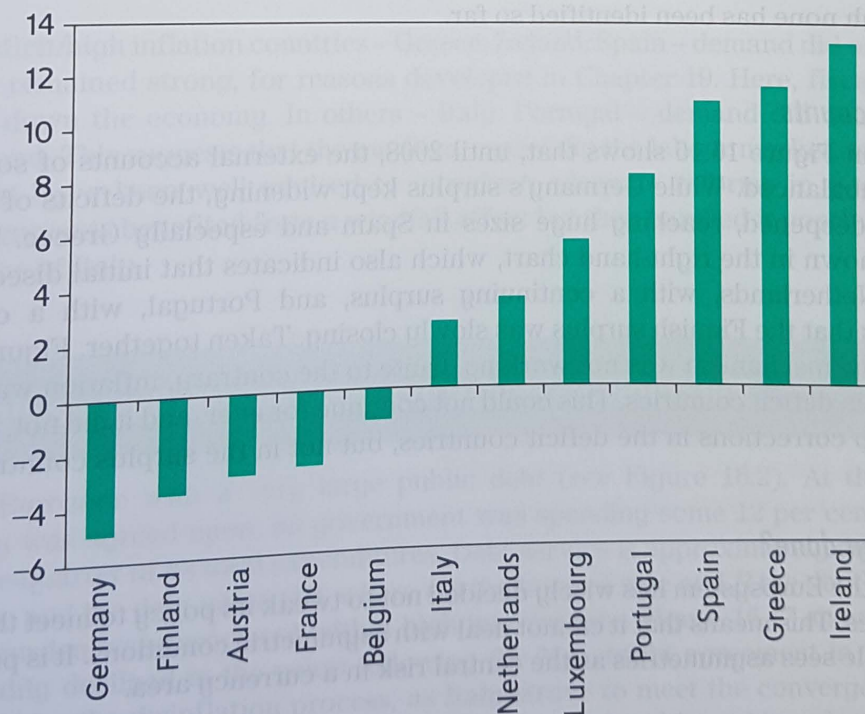
16.7.4 One money, one policy

Lasting differences in inflation

How about the much-feared asymmetric shocks emphasized by the optimum currency area (OCA) theory? The Eurozone crisis is an example of an enormous asymmetric choice, which renders discussions of the pre-2009 situation mundane. Yet, in many respects, the crisis itself is partly the consequence of asymmetric changes that were relatively small but persistent enough to create tensions within the monetary area.

Figure 16.7 documents fairly sizeable differences in inflation. The Eurosystem is eager to point out that inflation rates differ no more among the Eurozone member countries than across broad regions in the USA. The problem is that US regions alternate in their respective positions while, in the Eurozone, over the period 1999–2008, the same countries have persistently exhibited lower or higher inflation rates. A country that faces continuously higher inflation than others is bound to face a loss in competitiveness as its real exchange rate appreciates.¹¹ If this process persists, the country would then have to undergo several years of lower inflation to restore competitiveness. This is an implication of the self-equilibrating Hume mechanism presented in Chapter 14. Figure 16.15 shows that inflation has been lower than average in Germany, Finland and France, and higher than average in Ireland, Spain, Portugal, the Netherlands and Italy. Not surprisingly, the four countries with the highest inflation rates are those that eventually faced a crisis.

Figure 16.15 Change in price levels relative to the Eurozone, 1999–2008



Source: Based on data from OECD.

¹¹ Higher domestic inflation means that P/P^* increases. With the nominal exchange rate E permanently fixed, the real exchange rate EP/P^* appreciates.

What are the reasons for such a divergence? The potential explanations are as follows.

- *The Balassa–Samuelson effect.* This effect, presented in Chapter 13, predicts that the real exchange rates of catching-up countries appreciate. Within a currency area, real appreciation can be achieved only through higher than average inflation.¹² In this case, a higher inflation rate does not imply a loss of competitiveness. Quite the contrary, it is a consequence of rising productivity. This effect could be part of the explanation for the cases of Ireland, Spain and Portugal.
- *Wrong initial conversion rates.* Each currency was converted into euros at the ERM parity that prevailed in 1998, but there was no certainty that these conversion rates were fully adequate. For instance, it is now generally accepted that Germany's conversion rate was overvalued; this may explain why, from 1999 to 2008, its consumer price index declined by 4.5 per cent relative to the Eurozone's HICP. Similarly, Greece may have used an undervalued rate for the conversion of drachmas into euros.
- *Autonomous wage and price pressure.* Wage increases in excess of labour productivity gains eat into competitiveness. This basic truth may be lost when factors other than economics drive wage negotiations. For example, minimum wages can be raised to reduce inequality; civil servants – who do not face any foreign competition directly – may be well organized enough to extract wage increases; administered prices – electricity, transport – may be pushed up to avoid losses in state-owned companies. Such wage and price increases next filter down to all wages and prices because they raise production costs and the general price level. These factors seem to have played a role in Greece, Italy, the Netherlands, Spain and Portugal.
- *Policy mistakes.* Through excessively expansionary fiscal policies or public-sector price and wage increases, mentioned above, governments may, temporarily at least, contribute to inflationary pressure. Once prices are up, it is difficult to bring them down.
- *Asymmetric shocks.* This is the scenario that lies at the centre of the OCA theory. Oil shocks have not affected all Eurozone member countries to the same extent. Many other factors may have played a role, even though none has been identified so far.

Diverging current accounts

The left-hand chart in Figure 16.16 shows that, until 2008, the external accounts of some countries had been increasingly unbalanced. While Germany's surplus kept widening, the deficits of Greece, Italy and Spain continuously deepened, reaching huge sizes in Spain and especially Greece. The same can be said of Ireland, as shown in the right-hand chart, which also indicates that initial disequilibria remained unchanged in the Netherlands, with a continuing surplus, and Portugal, with a continuing deficit. The chart also shows that the Finnish surplus was slowly closing. Taken together, Figures 16.15 and 16.16 indicate that the Hume mechanism was not working. Quite to the contrary, inflation was lower in surplus countries and higher in deficit countries. This could not continue for ever, and it did not, but it took a major crisis to induce sharp corrections in the deficit countries, but not in the surplus countries (Germany and the Netherlands).

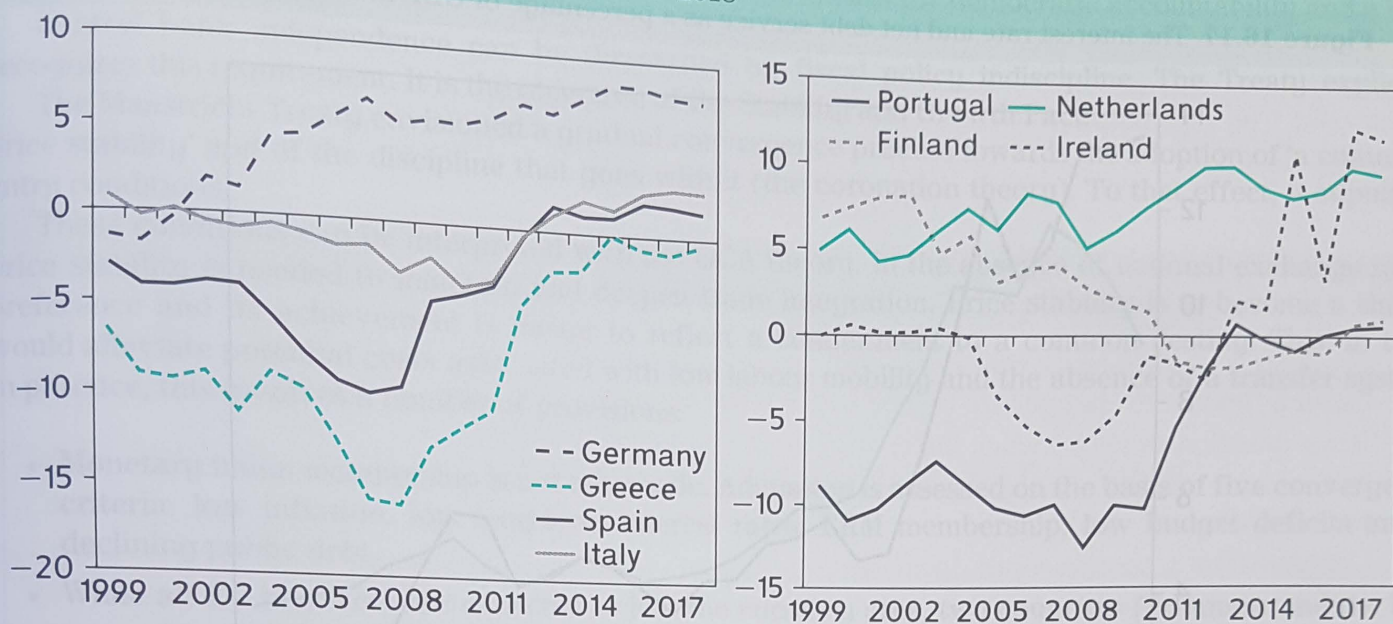
What could have been done?

As indicated earlier, the Eurosystem has wisely decided not to tweak its policy to meet the particular needs of individual countries. This means that it cannot deal with asymmetric conditions. It is precisely the reason why the OCA principle sees asymmetries as the central risk in a currency area.

¹² A Eurozone country's real exchange rate vis-à-vis the zone is EP/P^* . With a common currency the nominal exchange rate is $E = 1$, so the real exchange rate is P/P^* . A real appreciation requires that the domestic price level P increases faster than the foreign price level P^* .



Figure 16.16 Current accounts (% of GDP) 1999–2018



Source: Based on data from AMECO, European Commission.

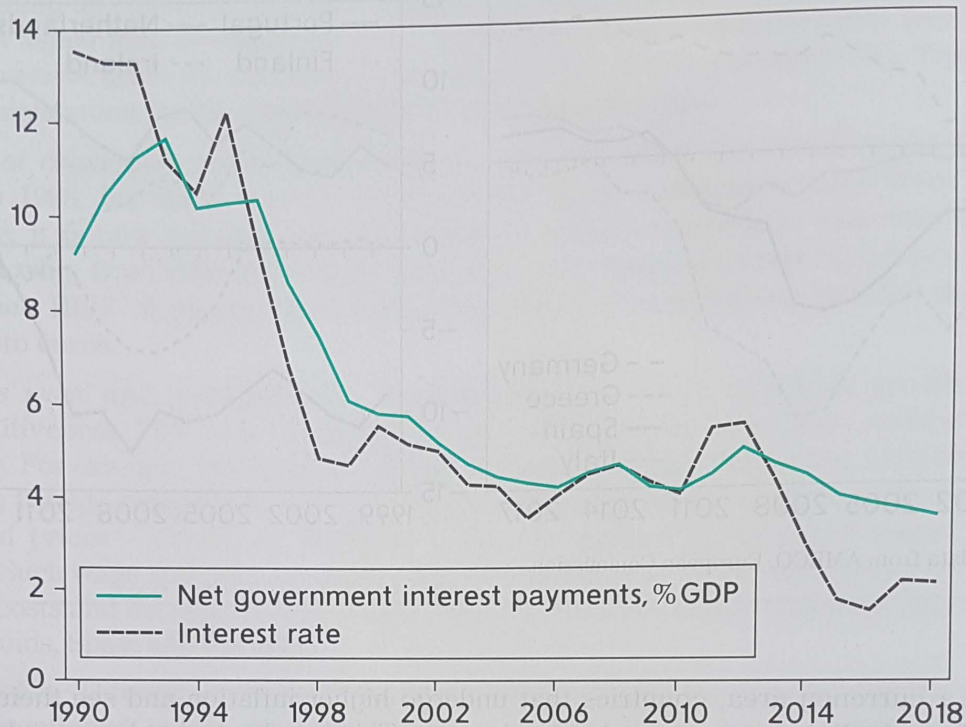
Normally, in a currency area, countries that undergo higher inflation and see their real exchange rate appreciate face declining exports and rising imports. This is indeed what happened. The stabilizing Hume implies that the demand for domestic goods is reduced, activity declines and unemployment rises. Downward pressure on wages and prices follows until inflation is lower and the correction takes place. This is not what happened until the crisis occurred. Why was this process stunted? There is no single answer.

In some high deficit/high inflation countries – Greece, Ireland, Spain – demand did not decrease because domestic spending remained strong, for reasons developed in Chapter 19. Here, fiscal policy could have been used to cool down the economy. In others – Italy, Portugal – demand did decline but wages and prices did not respond. This suggests that the markets, especially the labour market, were malfunctioning; governments would have been well advised to introduce adequate reforms in good time. In various countries, the governments benefited from a windfall effect but they handled it poorly. Box 16.8 describes this effect in the case of Italy.

Box 16.8 Italy's windfall gain from Eurozone membership

Italy joined the Eurozone with a very large public debt (see Figure 16.2). At the time when the Maastricht Treaty was agreed upon, its government was spending some 12 per cent of GDP on debt service, about one-quarter of its total expenditures. Debt service is approximately equal to the product of the interest rate and the debt value (iB , where i is the interest rate and B the debt). This means that part of the debt burden was associated with a high interest rate. Figure 16.17 shows how the Italian interest rate steadily declined in the years following the Maastricht agreement in 1991. The decline is partly explained by the disinflation process, as Italy strove to meet the convergence criteria. It is also explained by the credibility associated with Eurozone membership and its price-stability-oriented central bank. The remarkable feature of this evolution is the parallel decline in debt service, which has declined to about 40 per cent of what it used to be. Most of this huge windfall gain, worth 7.5 per cent of GDP, has been used by the Italian authorities to increase spending in many areas, not to reduce the debt.

Figure 16.17 The interest rate and net debt service as a percentage of GDP in Italy, 1990–2018



Source: Based on data from *Economic Outlook*, OECD.

16.7.5 Nominal and real convergence

Of course, the ECB and the European Commission were keenly aware of these adverse developments. The ECB could not do much, because its mandate is limited to monetary policy. As the ‘guardian of the treaties’, the Commission has the duty to remind countries of their commitments, but it lacked instruments. It could warn against dangerous trends in wages and prices and encourage reforms, and it did, but governments could ignore these recommendations that affected domains of full sovereignty. In theory, the Stability and Growth Pact gave more power to the Commission. It could issue formal warnings and recommend sanctions but the last word belonged to the European Council.

The monetary union is meant to ensure nominal convergence: price stability, a common nominal interest rate and a common exchange rate. Real convergence, which is about real growth and employment, with the required reforms, and about disciplined fiscal policies, was meant to be a byproduct of the ‘culture of price stability’. As a number of countries diverged on this dimension, the Commission could only put increasing emphasis on real convergence in its reports. After the crisis, as we shall see, the Commission won the right to formally monitor real convergence.

16.8 Summary

The monetary union is an elaborate construction carefully mapped out in the Maastricht Treaty. The Treaty was signed in 1991 and the single currency started to operate, as planned, in 1999, even though the new unique nature of the undertaking.

The main objective assigned to the Eurosystem is price stability; in practice, the Eurosystem aims at an inflation rate close to but below 2 per cent. The secondary objective, growth and employment, is to be

pursued only if price stability is not in jeopardy. In order to meet these objectives, the Eurosystem has been granted considerable independence. Independence, in turn, calls for democratic accountability and a high degree of transparency.

Central bank independence can be threatened by fiscal policy indiscipline. The Treaty explicitly recognizes this requirement. It is the objective of the Stability and Growth Pact.

The Maastricht Treaty envisioned a gradual convergence process towards the adoption of 'a culture of price stability' and of the discipline that goes with it (the coronation theory). To that effect, it stipulated entry conditions.

These conditions can be interpreted with the OCA theory. In the absence of national exchange rates, price stability is needed to maintain and deepen trade integration. Price stability is to become a shared preference and its achievement is meant to reflect a commitment to a common destiny. This, in turn, would alleviate potential costs associated with low labour mobility and the absence of a transfer system. In practice, this involves a number of provisions:

- Monetary union membership is not automatic. Admission is assessed on the basis of five convergence criteria: low inflation, low long-term interest rates, ERM membership, low budget deficits and a declining public debt.
- While all EU members are expected to join the currency area, two countries (Denmark and the UK) were given opt-out clauses.
- Eurozone members must continuously display fiscal discipline as required by the Stability and Growth Pact.
- The common central bank is to be completely independent.

This was the first time that the possibility of a 'two-speed Europe' was accepted.

A monetary union implies that monetary policy is delegated to a single authority. Yet the EU is not a federal system, so it was decided to maintain the national central banks. The resulting Eurosystem formally brings together the newly created ECB and the national central banks of all Eurozone countries. Decisions are taken by the Governing Council, chaired by the President of the ECB, which includes the ECB's Executive Committee and the governors of the central banks of the Eurozone countries. The Governing Council is very large, and is getting larger as new members join the Eurozone. It has been agreed to eventually cap its size to 25 through a rotation procedure that takes into account country size. Rotation started in 2015 following the accession of Lithuania.

The Eurosystem has also adopted the common practice of steering the short-term interest rate of the euro through three channels: the marginal refinancing facility sets a ceiling, the deposit facility sets a floor, and the interest rate is kept close to the middle of that range through regular auctions that establish the main refinancing rate.

Logic has it that the short-term interest rate affects the economy through a number of channels: credit availability and the money supply, the long-term real interest rate, asset prices and the exchange rate. Thus, the effect of monetary policy on the economy, and on inflation in particular, is indirect and the Eurosystem must factor in these various effects, all of which take time to produce results.

This requires a strategy. The Eurosystem's approach is to rely on two pillars: economic analysis (the medium-term impact of current conditions on inflation) and monetary analysis (the longer-term impact of monetary aggregates on inflation). In addition, the strategy recognizes that in a monetary union there can only be one monetary policy. This is why the Eurosystem explicitly cares only about the whole Eurozone, not about individual member countries. In addition, it takes no responsibility for the exchange rate that is freely floating.

The Eurosystem enjoys considerable constitutional independence, both in defining its objectives and in deciding how to conduct monetary policy. It is not allowed to take instructions from any other authority, be it European or national. This independence is a condition for guaranteeing price stability, but it raises an important issue: in a democracy, every authority has to be accountable to its citizens for its actions. The solution adopted by the Maastricht Treaty is to make the Eurosystem formally accountable to the European Parliament. Accountability takes the form of an annual report and regular hearings held by the Parliament's Committee on Economic and Monetary Affairs.

Between 1999 and 2007, until the advent of the global financial crisis, economic conditions in the Eurozone apparently worked smoothly. But there were disquieting signals. Having converged as a requirement of admission, a number of countries started to diverge. Lasting differences in inflation affected competitiveness. Growth was brisk in some countries, sluggish in others. External accounts became unbalanced. The shortcoming predicted by the OCA theory duly appeared and remained largely ignored. This led to the crisis.

Self-assessment questions

- 1 Consider a central bank that cares only about price stability. Use the *IS-ML-IRP* framework under a flexible exchange rate regime to see what happens when inflation is rising.
- 2 Same question as above when the central bank cares little about price stability.
- 3 A Eurozone member has a fixed exchange rate. Use the *IS-ML-IRP* framework to see what happens when:
 - demand for domestic goods declines;
 - interest rates abroad rise;
 - the government carries out an expansionary fiscal policy.
- 4 Why are central banks ultimately responsible for inflation? How can they achieve this objective?
- 5 Why do central banks have to anticipate future economic developments?
- 6 What are the five convergence criteria and what is the logic behind each of them?
- 7 Why can inflation rates differ across the EMU member countries? What are the consequences?
- 8 What is the difference between Denmark and Sweden regarding monetary union membership? Which one, if any, is likely to adopt the euro first?
- 9 What happens to a country's interest rate when it joins the Eurozone?
- 10 Why can't the Eurosystem take responsibility for national inflation rates?
- 11 What is the rationale of the Taylor rule?
- 12 Is the lack of real convergence a serious danger?

Essay questions

- 1 Can you imagine different entry conditions based on OCA principles?
- 2 The Eurosystem asserts in its deliberations that it never pays attention to local (i.e. national) economic conditions. The reason is that there is a single monetary policy and that 'one size fits all'. Discuss this approach and imagine alternative approaches.
- 3 The Maastricht Treaty describes in minute detail the creation of the Eurozone but is silent on a possible break-up. Imagine that a country is suffering from a severe loss of competitiveness. Could it leave? How? What could the other countries do to try to keep it in?
- 4 Why are transparency and accountability so important for the Eurosystem? What kind of difficulties can you envision if the system is perceived as not sufficiently accountable? Not sufficiently transparent?
- 5 The convergence criteria concern nominal conditions (inflation, deficits and debts) but not real conditions (GDP per capita, growth). This was understandable for the original founders but should the same criteria still apply?
- 6 'The crisis that started in 2007 has shown that central banks cannot just focus on price stability. Financial stability is as important.' Comment.
- 7 A perception exists that the ECB is too far away from people's concerns. Comment.

References and further reading

References

- Aucremanne, L., M. Collin and T. Stragier** (2007) 'Assessing the gap between observed and perceived inflation in the Eurozone: is the credibility of the HICP at stake?' Working Paper No. 112, National Bank of Belgium.
- Blinder, A., C. Goodhart, P. Hildebrand, D. Lipton and C. Wyplosz** (2001) 'How do central banks talk?', *Geneva Reports on the World Economy* 3, Centre for Economic Policy Research, London.
- Crowe, C. and E. Meade** (2008) 'Central bank independence and transparency: evolution and effectiveness', *European Journal of Political Economy*, 24(4): 763–77.
- ECB** (2003) 'The ECB's monetary policy strategy', press release, 8 May. Download from www.ecb.int.

Further reading: the aficionado's corner

- Burda, M. and C. Wyplosz** (2012) *Macroeconomics*, 6th edition, Oxford University Press, Oxford.

The first decade of the euro as reviewed by the ECB:

- European Central Bank**, www.ecb.int/pub/pdf/other/10thanniversaryoftheecbmb200806en.pdf?a2a06e7f1ee81c0d42249ee63d0ce0e8.

And by independent observers:

- Aghion, P., A. Ahearne, M. Belka, J. Pisani-Ferry, J. von Hagen and L. Heiksten** (2008) *Coming of Age, Report on the Eurozone*, Bruegel, Brussels. Download from www.bruegel.org.
- Fatás, A., H. Flam, S. Holden, T. Japelli, I. Mihov, M. Pagano and C. Wyplosz** (2009) *EMU at Ten: Should Denmark, Sweden and the UK Join?*, Stockholm: SNS-Centre for Business and Policy Studies. Download from www.sns.se.
- Mongelli, F.P. and C. Wyplosz** (2009) 'The euro at ten: unfulfilled threats and unexpected challenges', in B. Mackowiak, F.P. Mongelli, G. Noblet and F. Smets (eds), *The Euro at Ten – Lessons and Challenges*, European Central Bank, Frankfurt am Main.
- Wyplosz, C.** (2010) 'Ten years of EMU: successes and puzzles', in J.F. Jimeno (ed.), *Spain and the Euro: The First Ten Years*, Banco de España, Madrid.

For presentations of the Eurosystem, see:

- European Central Bank** (2011) *The Monetary Policy of the ECB*.
- European Commission**, http://ec.europa.eu/economy_finance/euro/index_en.htm.
- Padoa-Schioppa, T.** (former member of the Executive Board of the ECB) An Institutional Glossary of the Eurosystem. Download from www.ecb.int/press/key/date/2000/html/sp000308_1.en.html.

On Taylor rules, see:

- The Economist** (2005) 'Monetary policy in the Eurozone has been looser than critics think', 14 July. Download from <http://www.economist.com/node/4174785>.

Useful websites

- The ECB website: www.ecb.int.
- The Treaty of Maastricht: https://europa.eu/european-union/sites/europa.eu/files/docs/body/treaty_on_european_union_en.pdf.
- The President of the ECB reports every quarter to the Committee of Economic and Monetary Affairs of the European Parliament. The transcripts of the meetings, politely called 'Monetary Dialogue', as well as background reports, can be found at: <http://www.europarl.europa.eu/committees/en/econ/monetary-dialogue.html>.
- Both the IMF and the European Commission publish their annual survey on the Euro Area. These documents are available on these institutions' websites.