

Box A13.1 Existing monetary unions

In Africa, the CFA zone was created when the former French colonies gained independence in the 1960s.¹ It includes two unions: the West African Economic and Monetary Union (Benin, Burkina Faso, Côte d'Ivoire, Guinea Bissau, Mali, Niger, Senegal, Togo) and the Central African Economic and Monetary Union (Cameroon, Central African Republic, Chad, Democratic Republic of Congo, Equatorial Guinea, Gabon). These countries never created their own currencies (Mali and Equatorial Guinea did, until they joined the CFA zone in 1985). The two monetary unions are formally independent of each other and each has its own central bank, yet both pegged their currency to the French franc at the same rate, and both devalued just once, by 50 per cent in 1994. They have been pegged to the euro since 1999. The arrangement is special, a legacy of colonial times and based on a guarantee by France, but it is a true, modern monetary union. Belgium and Luxembourg formed a monetary union until they joined the euro area.

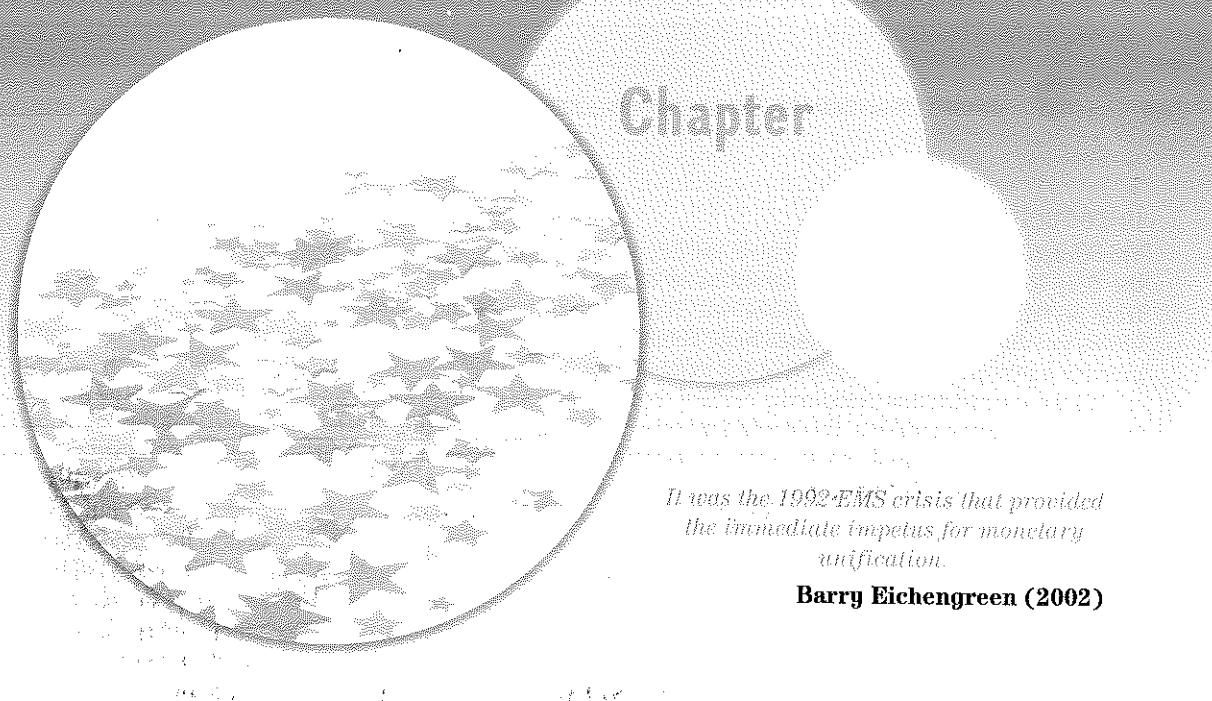
The East Caribbean Common Market (Antigua and Barbuda, Dominica, Grenada, St Kitts and Nevis, St Lucia, and St Vincent and the Grenadines) forms a monetary union. These are small islands that can hardly be compared to the European monetary union.

Brunei and Singapore also form a currency union.

Other countries have unilaterally adopted a foreign currency and therefore do not actively participate in the running of the central bank. This is the case of Kiribati, Nauru and Tuvalu, which use the Australian dollar; Lesotho, Namibia and Swaziland, which use the South African rand; and the Bahamas, Liberia, the Marshall Islands, Micronesia, Palau and Panama, which have adopted the US dollar. Since 2001, Ecuador and San Salvador have also adopted the US dollar. In Europe, Monaco uses the French franc (now the euro), Liechtenstein the Swiss franc, and San Marino the Italian lira (now the euro). These are not true monetary unions, since the centre country is not committed to taking into account the interests and viewpoints of its 'satellites', and actually never does.

¹ The term CFA comes from the old colonial French designation 'Comptoir Français d'Afrique'. The western Africa CFA means *Communauté financière d'Afrique* (Financial Community of Africa), while the central Africa version means *Coopération financière en Afrique centrale* (Financial Cooperation in Central Africa).

Chapter



Essential facts of monetary integration

It was the 1992-EMS crisis that provided the immediate impetus for monetary unification.

Barry Eichengreen (2002)

Chapter Contents

14.1	Back to the future: before paper money	328
14.2	Bretton Woods as an antidote to the inter-war debacle	333
14.3	After Bretton Woods: Europe's snake in the tunnel	334
14.4	The European Monetary System	336
14.5	The Maastricht Treaty	341
14.6	The crisis	343
14.7	Summary	344
	Annex: Hume's mechanism	347

Introduction

This chapter presents the main steps in the history of monetary integration in Europe. The aim is to reveal the deep logic that has led to the creation of the euro. As we know all too well, the monetary union is far from perfect – more on that in subsequent chapters – and political considerations have been paramount all along, yet there is also an economic logic behind it. Indeed, the concepts developed in the previous chapter provide a powerful interpretation of the main events.

All the countries that completely eschew capital controls are financially integrated already – the interest rate parity condition applies. This is often referred to as financial globalization and it concerns all the developed countries and, increasingly so, the emerging market countries. Monetary integration goes much further as it seeks to achieve a high degree of cooperation in the area of monetary policy. The interest rate parity condition links interest rates in two countries and their bilateral exchange rate. This shows that there is an intimate relationship between monetary policy – setting the interest rate – and exchange rate policy. In fact, one is just the other side of the coin of the other one. Indeed, the impossible trinity principle states that, when capital is freely mobile, a central bank can choose the interest rate, or the exchange rate, but not both at the same time.

This is why monetary integration can be viewed from the perspective of the exchange rate regime. When two countries want to stabilize their bilateral exchange rate, they have to cooperate in the area of monetary policy. The more exchange rate stability they wish to achieve, the tighter must be cooperation. At the end of the spectrum lies a monetary union, where the bilateral exchange rate has disappeared completely or, equivalently, has been set once and for all. In that case, there can be only monetary policy and, therefore, one central bank. A number of European countries have now reached this end of the road. The trip has been eventful and erratic. Part of the reason is that the concepts presented in Chapter 13 were either unknown or ignored. Going back over the events through the prism of current knowledge is not just fascinating; it also reveals the deep logic behind European monetary integration, as well as the reasons why a number of countries have chosen to pursue that process.

The chapter starts far back in the nineteenth century with a brief review of the Gold Standard. Interest in history is justified by the fact that, in many respects, a monetary union works like the Gold Standard. In both cases sovereign countries share the same currency – gold back then, the euro now – and can no longer use the exchange rate to correct imbalances. The correction was achieved automatically through price adjustments, a feature highly relevant to the Eurozone crisis. This is a warning, rather a reminder, that automaticity may be very painful.

The chapter next looks at the inter-war period, that of the Great Depression, currency crises and the dislocation of international trade as the Gold Standard crumbled. Policy mistakes accumulated during these years, providing a large number of important lessons. These lessons, in fact, have played a crucial role in shaping policy makers' thinking, and they still do. For one thing, the Bretton Woods system was shaped to avoid these past mistakes. From a European viewpoint, this system offered exchange rate stability. Its demise left Europe in need of a replacement. The chapter recounts the history of the 'snake' and its much-improved successor, the European Monetary System (EMS).

The EMS worked well as long as capital controls were pervasive. When these controls were removed, as predicted by the impossible trinity principle developed in Chapter 13, the EMS was no longer the solution to the quest for intra-European exchange rate stability. The logical response was a common currency.

We will see that the rise of capital mobility within Europe has forced a choice between monetary policy autonomy and intra-European exchange stability. There is no obviously better alternative; both have advantages and disadvantages, which is the main theme of Chapter 15. With some notable exceptions (Sweden and the UK, so far), some countries still undecided (the Czech Republic, Hungary and Poland) and others not yet ready (Bulgaria, Croatia and Romania), the other countries have opted for exchange rate stability (Denmark is a special case discussed below). Over several decades, this choice, largely driven by past experience, has triggered a series of moves that made the adoption of a common currency a natural step.

14.1 Back to the future: before paper money

Europe's path to complete monetary integration is spectacular but, in many ways, it is just a return to the situation that prevailed before the introduction of paper money. This section reviews the historical record, partly for its own sake, and partly because some important lessons have been learnt and forgotten.

14.1.1 The world as a monetary union

From time immemorial until the end of the nineteenth century, money was metallic (mainly gold and silver) and a bewildering variety of currencies were circulating side by side. Each currency was defined by its content of precious metal and each local lord endeavoured to control the minting of currency in his fiefdom, chiefly because it was a source of revenue, called seigniorage. Exchange rates existed between these coins – recognizable by the face of the lord – but they merely corresponded to the different contents of precious metal in coins. This was the Gold Standard.

In effect, goods were priced in gold (or silver, but we ignore this detail from now on) weight. Buyers and sellers would then exchange various coins whose gold content added up to the price. In practice, gold was *the* currency and monies were merely the materialization of gold. The 'world' was just one monetary union. While there are vast differences between now and then, chiefly the existence of central banks that can create money, the functioning of this monetary union is of more than historical interest.

This system had a very nice property: it automatically restored a country's external balance. This property, which was lost when we adopted paper money, is known as Hume's price-specie mechanism (see Box 14.1 for a note on Hume). The mechanism is well worth a modern visit because it applies to the internal working of a monetary union. It is presented at some length in the Annex. Briefly stated, the mechanism works as follows. A country whose prices are too high is uncompetitive and runs a trade deficit. This means that importers spend more gold money, which is shipped abroad, than importers receive from abroad in payment for their sales. Overall, therefore, the stock of money declines. Long-run monetary neutrality means that eventually prices will decline. The process must go on automatically until competitiveness is restored and the external deficit has been eliminated. The opposite occurs when prices are too low and the current account is in surplus: inflows of gold eventually lead to higher prices and a correction of the surplus. Thus, even though there is no exchange rate, imbalances cannot last forever. They are self-correcting.

Box 14.1 David Hume (1711–76)



Born in 1711 to a well-to-do family in Berwickshire, Scotland, Hume mostly wrote on philosophy, including the *Principles of Morals* (1751), which founded, among other things, the theory of utility. His works were highly influential even though they were denounced at the time as sceptical and atheistic. His economic thinking, mainly contained in *Political Discourses* (1752), had a large impact on Adam Smith and Thomas Malthus.

Source: Library of Congress Prints and Photographs Division

The automatic return to external balance implies that the 'world monetary union' was inherently stable. The underlying reason is the impossible trinity principle. There was no exchange rate as money was everywhere simply gold, so it was a universal fixed exchange rate regime. There were no capital controls; although moving gold across borders was cumbersome and necessarily slow, it was moving. Monetary policy autonomy could not exist, therefore, and it did not since there was no central bank (and no paper money). Beyond what could be extracted from the ground and rivers, the stock of gold money was entirely determined by the balance of payments and interest rates were adjusting according to market demand and supply.

Great, then? Not so fast, please. Note that prices had to do the balancing work. They were going up and down, as did wages. What was bringing prices and wages down were long periods of recession and rising unemployment. Poverty was rampant and was worse during these periods of adjustment. It is easy to admire the automatic world of gold money and to forget the hardship that it imposed. The invention of paper money is a great achievement but, like any invention, it can be misused.

The European monetary union bears more than a passing resemblance to the Gold Standard. The euro replaces gold since national central banks are no longer allowed to issue national currencies and there is no national exchange rate. Within the Eurozone, when one country runs a balance of payments surplus, it receives an inflow of euros, and conversely, in the case of a deficit, its money supply automatically shrinks. Thus, the Hume mechanism is at work inside the Eurozone. In particular, a deficit country can no longer use the exchange rate to re-establish its competitiveness. This will have to be achieved through prices (and wages), which will have to increase more slowly than in the rest of the Eurozone, possibly even to decline. This is precisely what happened in the early 2010s in a number of crisis-hit countries. It came as a shock, but it should not. Hume's mechanism was left to work. As we will see in Chapter 19, there are better ways of running a monetary union, without the full rigour of the mechanism, but they were not used, at least not sufficiently.

Paper money started to exist on a significant scale in the late nineteenth century. Gradually, it started to spread and even to circulate internationally. It was convenient and presumed safe since each banknote was very explicitly a right to obtain a specified amount of gold. This is why the new arrangement was called the Gold Exchange Standard. In contrast with gold, however, paper money did not have to be dug out of the ground. It could be produced at will by the relevant authority. How much should that be? It has taken several decades to find answers to that question. Meanwhile, experimenting with this new instrument has not been an entirely happy process.

It was also during the nineteenth century that people started to identify money with individual countries, as part of the process of creating nation-states.¹ Efforts were then made, not fully successfully, to put some order into what we would now call the international monetary system. As Box 14.2 explains, some countries even decided to share the same currency.

Box 14.2 Early European monetary unions

By the early nineteenth century, gold and silver coins circulated side by side. The exchange rate between gold and silver fluctuated depending on discoveries of these precious metals. Britain was the first large country to drop silver and adopt the Gold Standard. On the Continent, bimetallism survived much longer, even though some countries (Germany, the Netherlands, the Scandinavian countries) favoured silver, until gold discoveries in the 1850s resulted in the disappearance of silver money on much of the Continent.

To preserve bimetallism, Belgium, France, Italy and Switzerland formed the **Latin European Monetary Union** in 1865 – a distant ancestor of today's monetary union. Greece joined in 1868. That effort foundered following the Franco-German war of 1870–71, when the newly established German empire shifted from silver to gold and weakened French finances by imposing war reparations to be paid in gold. When silver discoveries in Nevada depressed the price of silver, the Latin European Monetary Union was abandoned in 1878 and gold became the monetary standard.

The **Scandinavian Monetary Union** was created in 1873 by Denmark, Norway and Sweden, as part of the 'Scandinavianism' movement in support of the symbol of a common krona. These countries' currencies circulated widely in each other's territories. At the outbreak of the First World War, the Scandinavian Monetary Union ceased to exist, and was officially pronounced dead in 1924.

These precedents are merely of historical interest and bear little resemblance to modern monetary unions now that the currency is no longer metallic and central banks create money. These old monetary unions amounted to nothing more than harmonized coinage. They were not associated with any trade agreement and, more importantly, there was no common central bank and very little coordination among the national monetary authorities. When external conditions became difficult (the fall of the price of silver in the case of the Latin European Monetary Union, and the dislocations of war in the case of the Scandinavian Monetary Union), each country reacted in its own way to protect its own interests.

¹ Germany and Italy achieved political unification late in that century, and many different currencies still circulated there well into the 1850s. It took Italy two decades after its political unification in 1861 to achieve monetary unification. Similarly, even after the creation of the German Reich in 1871, different monetary standards survived until the Bank of Prussia unified German monies.

14.1.2 The unhappy inter-war period

The Gold Exchange Standard was suspended in 1914 when hostilities disrupted gold shipping and therefore the ability to pay for international trade. Paper money was not trusted at this time of upheaval and gold could not be shipped safely. The subsequent inter-war period left a bitter taste in Europe, which still haunts the Continent. Belligerent countries had emerged exhausted from the First World War facing huge debts. Over the next 30 years they would never quite fully recover. In many ways, post-war European economic and political integration represents an effort to rule out any repeat of the inter-war disaster.

Wars are expensive and strain budgets, especially as governments are loath to raise taxes. The two alternatives are either to issue debt or to run the printing press. Both were used during the First World War. Prices were often kept artificially stable through rationing schemes; when war ended and prices were freed, the accumulated inflationary pressure burst. Some of the most famous hyperinflations erupted during this period, with Germany, Hungary and Greece facing *monthly* inflation rates of 1000 per cent or more in the early 1920s.

Lacking the vision of how a world of paper money could work – many even doubted that it could exist – post-war policy makers committed to return to the Gold Exchange Standard as soon as practical, but at which exchange rate? Different European countries adopted different strategies, which ended up tearing them apart, economically and politically. We look at three prominent cases: the UK, France and Germany.

The UK

Hoping to retain its traditional leadership in international monetary matters in the face of a mounting US challenge, the UK decided to return a much-depreciated sterling to its pre-war gold parity, 'to look the dollar in the face'. This forced appreciation of the pound is shown in Figure 14.1.² This decision has been recognized as a landmark policy mistake. Since 1914, prices had increased much more in the UK than in the USA, the newly emerging economic powerhouse. Returning sterling to its pre-war value resulted in overvaluation. Restoring competitiveness required bringing prices back down through deflation, a lengthy and painful process. As the impossible trinity principle suggests, monetary policy autonomy was lost. Poor growth and a weak current account eroded trust in sterling, once considered 'as good as gold'. The City of London lost ground to New York's Wall Street.

When the Great Depression followed the 1929 Wall Street crash, the British economy was already weak. The UK was in no position to deal with yet more hardship. The exchange markets sensed this vulnerability and repeatedly launched speculative attacks on sterling. When, at long last, the Bank of England withdrew from the Gold Standard in 1931, sterling promptly lost 30 per cent of its value with respect to gold and the dollar. An ambition was gone, and the price was high: a decade of miserable growth.

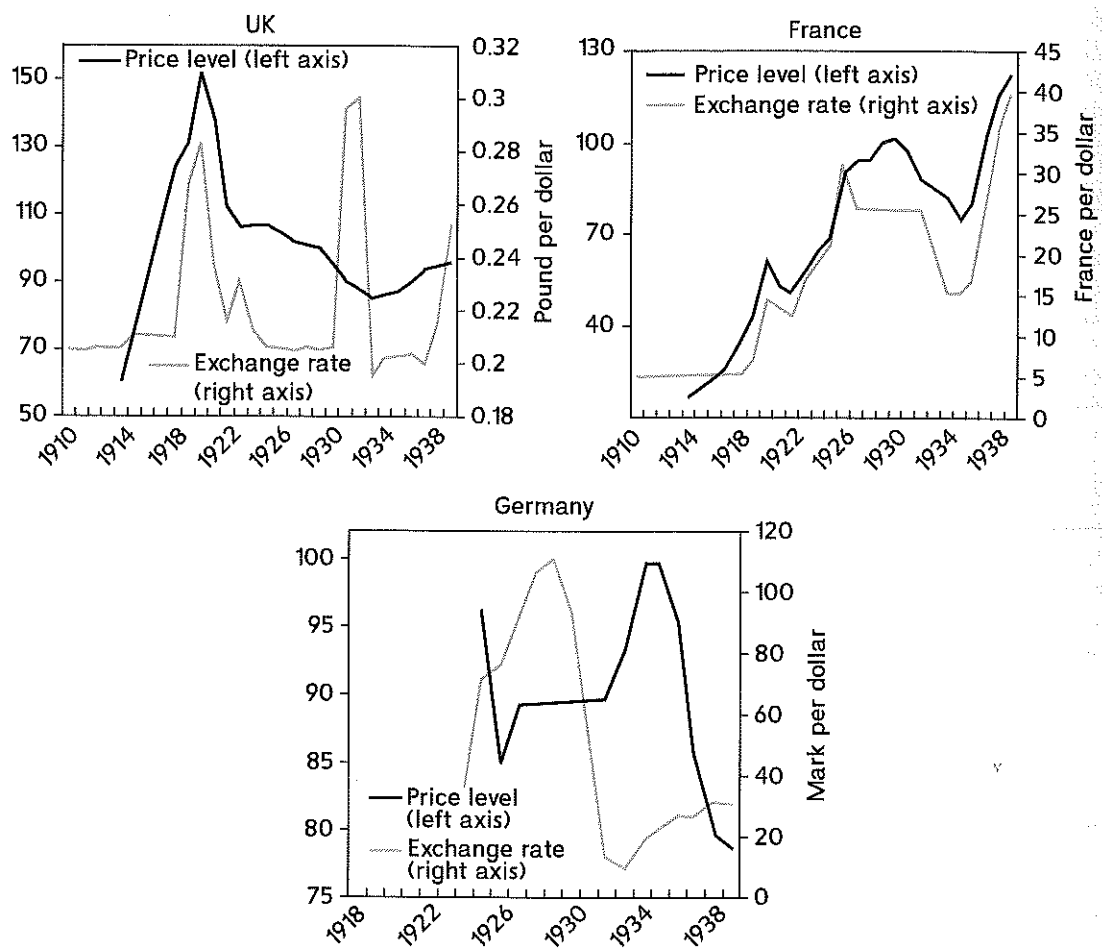
France

France, too, initially intended to return to its pre-war gold parity, but lost control of inflation for a period of several years. During the war the French debt had grown significantly higher than UK debt. The government allowed it to rise further after the war on the premise that Germany's huge war reparations imposed by the Treaty of Versailles would eventually pick up the bill. When, by 1924, it became clear that Germany would not plug the hole, inflation soared to an annual rate of close to 50 per cent. The franc was attacked and sunk. When inflation was finally halted in 1926, the franc was stabilized at one-fifth of its pre-war parity.

France officially returned to the Gold Standard in 1928 but, in contrast to the pound, at an undervalued exchange rate. Over the next few years, the undervaluation served France well as it could run surpluses on its balance of payments and the Banque de France accumulated large foreign exchange reserves. France thus escaped the Great Depression relatively unscathed because it was competitive. Trouble started when many countries followed Britain's 1931 decision to devalue. Their renewed competitiveness came at the expense of that of France. The last blow came when the USA also abandoned the Gold Standard, in 1933, and devalued the dollar by 40 per cent. Fighting the inevitable, France and some other countries (Belgium,

² Note that the exchange rate is expressed as the number of pounds needed to buy one US dollar. A decrease means an appreciation, since fewer pounds are needed to buy one dollar. The same definition is used in the other charts collected in Figure 14.1.

Figure 14.1 Prices and exchange rates: France, Germany and the UK, 1910-39



Note: The consumer price index is set at 100 in 1929. Exchange rates are defined as the price to pay for one US dollar, indexed at 100 in 1929. This means that an increase represents a depreciation, since the dollar becomes more expensive. We choose this presentation because it makes the PPP link between the exchange rate and the price level clearer: a higher price means a depreciation, hence a higher exchange rate as defined here.

Source: Mitchell (1998)

Luxembourg, Italy, the Netherlands, Poland and Switzerland) formed the Gold Bloc, in an attempt to jointly protect their now overvalued currencies. Overvaluation is the channel through which France was finally hit by the Great Depression. Facing speculative attacks, exactly as had the UK ten years earlier, France finally devalued its currency by a whopping 42 per cent.

Germany

In contrast to France and the UK, Germany never considered returning to its pre-war exchange rate. Its domestic public debt was huge, without even taking the massive war reparations imposed in 1919 by the Treaty of Versailles into account. As in France, Germany's post-war inflation was high, but in 1922 it slipped out of control.³ The result was one of history's most violent hyperinflations. A new Deutschmark – worth

³ This is why pre-hyperinflation prices and exchange rates are not shown in Figure 14.1 – the scale doesn't allow for them!

one million times the old one – was established in 1924 as part of a successful anti-inflation programme. The German economy started to pick up just when it was hit by the Great Depression. Preservation of the restored value of the mark was seen as essential to dispel the ghosts of hyperinflation. Like the franc, the mark became overvalued when more and more countries devalued their own currencies. Germany first suspended its debt and then started to move away from a free trade system. Then capital controls were established. As the depression deepened, the Nazis combined public spending with wage and price increases. This further dented external competitiveness and deepened the trade deficit. The response was to stop the conversion of marks into gold and foreign currencies – an extreme form of capital control – and to impose ever-widening state controls on imports and exports. Germany bypassed completely the foreign exchange market by working out bilateral barter agreements with one country after another.

Lessons

With free capital mobility re-established, once they had restored the Gold Exchange Standard – i.e. when they set a fixed gold value for their paper monies – France and the UK had to forego autonomy over their monetary policies. In the depths of the Great Depression, however, the urge to use monetary policy became too strong. The impossible trinity principle was violated and the result was the end of the fixed exchange rate system. Germany respected the impossible trinity principle, in an extreme way, by severing all market-based relationships with the rest of the world.

Once the Gold Exchange Standard collapsed, exchange rates were left to float, a fairly novel experience. Faced with a deep recession, each country – except Germany – sought to boost its exports by letting its exchange rate depreciate and become undervalued. But one country's undervaluation is another country's overvaluation, hurting foreign exports. The ensuing round of tit-for-tat depreciations, which came to be called beggar-thy-neighbour policies, led nowhere but began to disrupt trade. Protectionist measures soon followed and trade exchanges went into a tailspin, aggravating the depression. The result was political instability, leading to war.

This traumatic period left a deep imprint within Europe, shaping post-war thinking among policy makers who started to realize the complexity of paper money. Among the many lessons learnt, two are relevant for the monetary integration process:

- Floating exchange rates can be manipulated. The resulting misalignments breed trade barriers and eventually undermine prosperity. Most European countries developed a fear of floating, which remains a key concern today.
- The management of exchange rate parities cannot be left to each country's discretion. We need an international order that deals with the fact that one country's depreciation is another country's appreciation. In other words, we need a 'system'.

14.2 Bretton Woods as an antidote to the inter-war debacle

Even before the end of the Second World War, the USA and the UK started to plan the Bretton Woods conference. The aim was to establish an international monetary system based on paper currencies. Gold remained the ultimate source of value, but the dollar became the anchor of the system, and the US government guaranteed its value in terms of gold. All other currencies were defined in terms of the dollar. Exchange rates were 'fixed but adjustable' to avoid both unreasonable adherence to an outdated parity (over- or undervaluation) and an inter-war-type free-for-all. The system was a collective undertaking, with the International Monetary Fund (IMF) both supervising compliance and providing emergency assistance. As supplier of the system's central currency and host of the IMF in Washington, the USA was the ultimate economic and political guarantor of the system. Capital controls were not outlawed and most countries made abundant use of them. This was compatible with the impossible trinity.

The system unravelled when capital controls started to be lifted in the 1960s. The impossible trinity principle required that exchange rates be freed – including the link between the dollar and gold – or that the authorities give up monetary policy autonomy. Most governments – Canada being a rare exception as it chose to let its currency float in violation of the Bretton Woods agreements – refused to make such a choice.

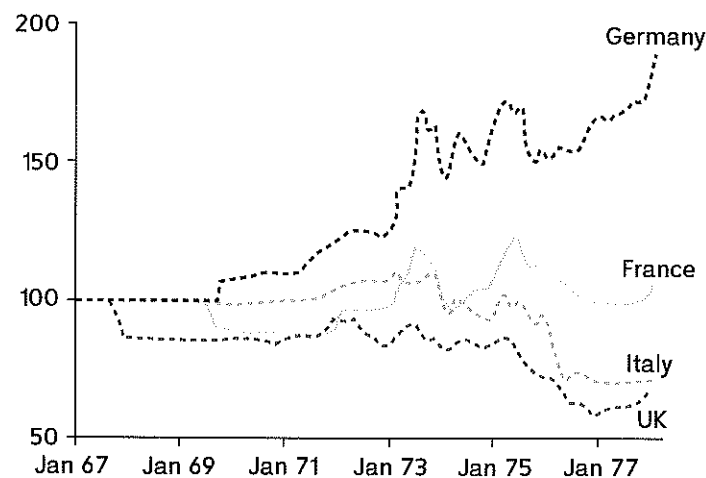
With widespread capital controls in place, most countries actively used monetary policy to prop up growth. The monetary neutrality principle was not yet well established so there was no concern regarding inflation. By the late 1960s, however, inflation started to rise in a number of countries, including the USA. The anchor of the system, the US dollar, gradually became overvalued. The Bretton Woods system came under strain when the USA could no longer guarantee the dollar's gold value because the stock of dollars exceeded the value of its gold reserves. The demise of the system occurred in two steps. First, in 1971, the USA 'suspended' the dollar's convertibility into gold. Then, in 1973, the 'fixed but adjustable' principle was officially abandoned; each country would now be free to choose its exchange rate regime and could retain monetary policy autonomy if it accepted a flexible exchange regime. This effectively ended the Bretton Woods era.

14.3 After Bretton Woods: Europe's snake in the tunnel

In the 1970s, the European countries were focused on developing the Common Market. With fresh memories of the interwar period, they wanted fairly fixed exchange rates and reassurances that competitive devaluations would be held in check. The Bretton Woods system had provided the solution: exchange rates were fixed and the IMF exerted surveillance on all member countries. Once the system fell apart, Europe found itself without a solution. Its early reaction charted the path for the monetary union that was created three decades later.

The first response was the 'European snake', a regional stepped-down version of the Bretton Woods system designed to limit intra-European exchange rate fluctuations by pegging European currencies to the dollar. Under the protection of capital controls, monetary policy was available. Still ignorant of the link between money growth and inflation, many countries used their central banks to expand credit in order to sustain rapid economic growth. The monetary neutrality principle predicts that, with the money stock growing at a sustained rate, inflation should creep up gradually, which is exactly what happened. Germany and Switzerland, which had forfeited capital controls, used monetary policy sparingly and kept inflation in check. Real exchange rates started to move away from their equilibrium levels.⁴ PPP implies that this situation cannot last for long. External deficits deepened in those countries experiencing inflation and surpluses emerged in Germany and Switzerland. In the late 1960s, France and the UK, two high-inflation currencies, devalued their currencies. The realization that exchange rates were as adjustable as they were fixed, triggered speculation and more countries devalued. Soon European nominal exchange rates became unhooked, as Figure 14.2 shows. PPP was asserting itself.

Figure 14.2 Dollar exchange rates, January 1967–December 1977



Source: IMF

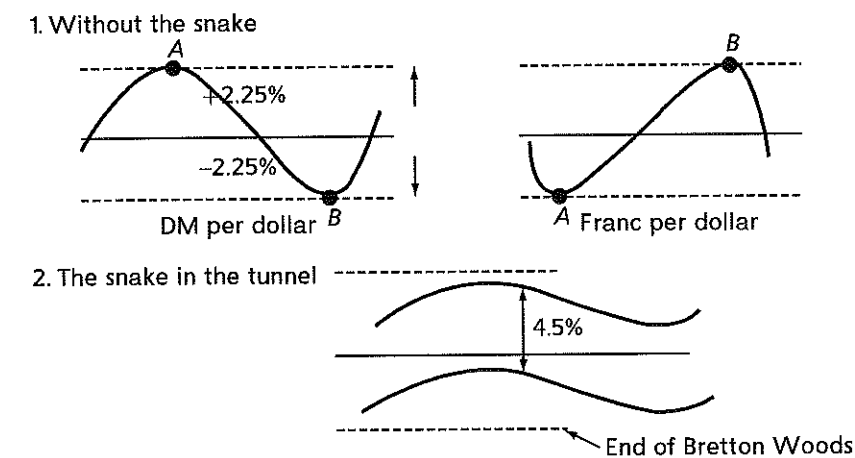
⁴ With fixed nominal exchange rates E , higher increases in the domestic price level led to real appreciation as EP/PP^* rose. Low inflation countries, on the other hand, underwent real depreciations as EP/PP^* declined.

As explained in Box 14.3 below, the snake was a loose arrangement. It did not deal with the impossible trinity principle: capital controls were often in place but they were not tight and could increasingly be evaded, while there was no restriction on national monetary policies. When inflation rose abruptly in the wake of the first oil shock of 1973–74, the central banks reacted differently. Some (Germany, the Netherlands, Belgium) succeeded at keeping inflation in check, whereas others (e.g. Italy and the UK) did not. Maintaining exchange rate fixity with divergent monetary policies was hopeless and, indeed, several countries had to leave the snake arrangement.

Box 14.3 The snake in the tunnel

In 1971, in a last-ditch effort to save the Bretton Woods system, it was decided to widen the margin of fluctuations vis-à-vis the dollar from ± 1 per cent to ± 2.25 per cent. Non-dollar currencies, like the mark and the franc, would now fluctuate by as much as 9 per cent vis-à-vis each other, as is shown in the upper part of Figure 14.3. Under the Bretton Woods system, the exchange rates of the franc and the mark were determined in terms of dollars. Consider the case, represented by both points A, where these currencies are at their opposite extremes vis-à-vis the dollar; the mark is 2.25 per cent above the dollar and the franc 2.25 per cent below it. As a result, the mark is 4.5 per cent above the franc. At the opposite extremes (points B), the mark is 4.5 per cent below the franc, with a total amplitude of 9 per cent. A number of European countries (the EC members as well as Denmark, Ireland, Norway, the UK and Sweden) felt that this was too wide a margin and decided to maintain their bilateral rates within a common ± 2.25 per cent band of fluctuation. This was called the 'snake in the tunnel' – a colourful representation of their joint movements vis-à-vis the dollar, as shown in the lower part of the figure. Once the Bretton Woods system ended, the tunnel was gone but the EC countries resolved to keep the snake, i.e. to limit the range of variation of their bilateral exchange rates to a maximum of 4.5 per cent. The snake crawled out of the vanishing tunnel and, in doing so, led directly to the EMS.

Figure 14.3 The European snake (all currencies relative to the US dollar)



The snake had embodied the determination of policy makers to keep intra-European rates fixed, irrespective of what happened elsewhere in the world. It was meant to be 'an island of stability in an ocean of instability'. It failed because it did not recognize that increasing freedom of capital movements was incompatible with monetary policy autonomy. That lesson was not yet taken on board but another lesson

shaped the next step, the creation of the European Monetary System (EMS). It was slowly being recognized that paper money does not need any backing. The Gold Exchange Standard and the Bretton Woods system still retained a link to gold. The snake had given up on gold but replaced it with the dollar. Europe now realized that it did not need the dollar either, much as the dollar was not linked to any superior anchor since 1971. From there on in, the European currencies would be defined vis-à-vis each other.

14.4 The European monetary system

The decision to create the system was taken in 1978 by German Chancellor Helmut Schmidt and French President Valéry Giscard d'Estaing. The heart of the EMS is the Exchange Rate Mechanism (ERM), a system of jointly managed fixed and adjustable exchange rates backed by mutual support. Open to all EU countries, the ERM has seen its membership grow and then decline (see Table 14.1) as countries give up their national currencies for the euro. Several more recent EU member countries have followed this pattern, leaving the mechanism with just one member, Denmark.

Table 14.1 ERM membership

Older EU members	Joined	Left	Recent EU members	Joined	Left
Austria	1995	1999	Bulgaria		
Belgium/Luxembourg	1979	1999	Cyprus	2005	2008
Denmark	1979	Still a member	Czech Rep.		
Finland	1996	1999	Estonia	2004	2011
France	1979	1999	Hungary		
Germany	1979	1999	Latvia	2005	2014
Greece	1998	2001	Lithuania	2004	2015
Ireland	1979	1999	Malta	2005	2008
Italy	1979, 1996	1992, 1999	Poland		
Netherlands	1979	1999	Romania		
Portugal	1992	1999	Slovakia	2005	2009
Spain	1989	1999	Slovenia	2004	2007
Sweden					
UK	1990	1992			

Note: Italy, Portugal and Spain initially operated a wider (± 6 per cent) band of fluctuation around the central parity than the normal (± 2.25 per cent) band. In 1993, the band was widened to ± 15 per cent, but Denmark has retained the narrow (± 2.25 per cent) band. All other current members of the ERM operate the wide (± 15 per cent) band, except for Latvia (± 1 per cent). Luxembourg used the Belgian franc until the euro was created.

Political sensitivities were important in shaping the design of the ERM. Germany would never take the risk of weakening its star currency, the Deutschmark, while France could not be seen to be playing second fiddle to Germany. Additionally, the smaller countries had to be brought along, while the UK was staunchly opposed to any fixed exchange rate regime. The squaring of the circle took the form of an explicitly symmetric arrangement, without any currency at its centre, and it established a subtle distinction between

the European Monetary System, of which all European Community countries were de facto members, and the Exchange Rate Mechanism, an optional but operational scheme.

14.4.1 Fixed and adjustable exchange rates

The ERM involves four main elements: a grid of agreed-upon bilateral exchange rates, mutual support, possibility of realignments but subject to unanimity agreement, and the European Currency Unit (ECU).

All ERM currencies were fixed to each other, with a band of fluctuation of ± 2.25 per cent around the central parity (Italy was initially allowed a margin of fluctuation of ± 6 per cent, in recognition of its higher rate of inflation and internal political difficulties). The resulting bilateral rates formed the grid. The responsibility for maintaining each bilateral exchange rate was explicitly to be shared by both the strong- and the weak-currency countries, thus removing the stigma of one weak and one strong currency. This symmetry ended with the advent of the euro; the common currency has now become the reference for ERM members – the grid has disappeared – and the responsibility to uphold the declared parity belongs to the ERM not the ECB.

Defence of any bilateral parity required central banks to intervene in the foreign exchange markets, buying the weak currency and selling the strong one. Crucially, this commitment was *unlimited*. If the weak-currency central bank had exhausted its reserves, it could borrow those of the strong-currency central bank. Other ERM central banks, even if they were not directly involved, could decide to give a helping hand, by also intervening in the foreign exchange markets.

How long should interventions be pursued? Clearly, if markets remained unimpressed by the artillery lined up against them, there remained the possibility of depreciating the weak currency, appreciating the strong currency, or both. Realignments, as these actions were called, had to be agreed by all ERM members because all parities were defined bilaterally. The consensus rule implied that, in effect, each country gave up exclusive control of its own exchange rate. The history of realignments is shown in Table 14.2.

Table 14.2 ERM realignments

Dates	24.9.79	30.11.79	22.3.81	5.10.81	22.2.82	14.6.82
No. of currencies involved	2	1	1	2	2	4
Dates	21.3.83	18.5.83	22.7.85	7.4.86	4.8.86	12.1.87
No. of currencies involved	7 ^a	7 ^a	7 ^a	5	1	3
Dates	8.1.90	14.9.92	23.11.92	1.2.93	14.5.93	6.3.95
No. of currencies involved	1	3 ^b	2	1	2	2

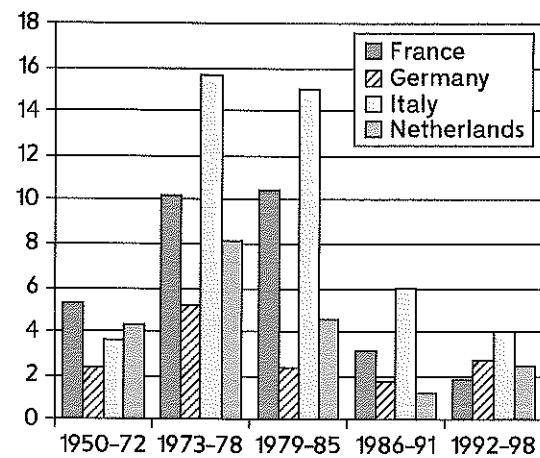
^a All ERM currencies realigned;

^b in addition, two currencies (sterling and lira) leave the ERM.

14.4.2 From divergence to convergence and blow-up

Between 1979 and 1987, realignments occurred no fewer than 12 times, once every 8 months on average. Most of them occurred in the midst of serious market turmoil. The reason is that, in violation of the impossible trinity principle, most countries sought to retain monetary policy autonomy. Until the mid-1980s, capital controls were in place in most countries, so policy autonomy was possible. The result was different inflation rates, as indicated in Figure 14.4. As a result, realignments were frequently needed to re-establish competitiveness, an implication of the PPP principle presented in Chapter 13. For this reason, they were

Figure 14.4 Inflation during the ERM years



Source: IMF

easily guessed ahead of time and investors rushed to sell off the currencies up for devaluation, which resulted in speculative crises that often forced the hands of the national authorities.

As capital controls were lifted, realignments became increasingly destabilizing. This pushed high-inflation and depreciation-prone countries to seek to bring down inflation to the lowest rate. The monetary policy of Germany, the perennial low-inflation country, became the ERM standard. The other countries de facto surrendered monetary policy autonomy. The impossible trinity principle was finally accepted.

With all central banks emulating the Bundesbank, inflation rates started to converge. For nearly 6 years, from early 1987 to September 1992, there was no realignment.⁵ The link became tighter as capital controls were formally banned as of 1990. The Deutschmark served as anchor, leaving its central bank, the Bundesbank, with full monetary policy autonomy. A system designed to be symmetric, in violation of the impossible trinity principle, had become perfectly asymmetric.

This unplanned evolution had two momentous implications. First, the other countries resented the Bundesbank leadership. The next step in the reasoning was: if we have to give up national monetary policy autonomy, we should share it collectively, not delegate it to one national central bank. Of course, Germany was unwilling to relinquish its lock on ERM monetary policies but, in the end, accepted a political deal in 1991: the monetary union in exchange for its own reunification with the former East Germany. This is when the second event occurred and nearly destroyed the ERM, in 1992–93.

14.4.3 The crisis of 1992–93

The absence of any realignment for about 6 years looked good,⁶ but inflation rates never fully converged (see Figure 14.4) because monetary neutrality sets in very slowly. While countries such as Denmark and

⁵ The 1990 realignment (Table 14.2) was not really a realignment. It was merely a technical adjustment prompted by Italy's decision to switch to the narrow ± 2.25 per cent band of fluctuation, a consequence of the 'strong lira' policy. Parity was brought closer (from 6 per cent to 2.25 per cent) to its weak margin.

⁶ The Governor of the Banque de France at that time, Jean-Claude Trichet, famously defined his objective as 'competitive disinflation', a reference to the infamous competitive devaluations of the inter-war period.

France indeed moved towards the German inflation rate, others, such as Italy, Portugal and Spain, failed to get close enough because they had started from too far afield. Their real exchange rates kept appreciating, which resulted in a dangerous loss of competitiveness. Any spark could trigger speculative attacks. In short succession, three sparks were ignited.

The first spark came from Germany. Unification represented an inflationary risk. The Bundesbank responded by sharply raising its interest rate. Facing a global economic slowdown, several overconfident European central banks decided not to follow the Bundesbank and to recover some autonomy. The result of this violation of the impossible trinity principle was bound to trigger speculative attacks on the countries that had lost competitiveness.

The second spark came from Denmark. The Maastricht Treaty – the creation of a single currency – had been signed in December 1991 and was to be ratified by each Member State. The first country to initiate the ratification process was Denmark, where law mandates that international treaties be submitted to referendum. For a variety of reasons, some quite obscure,⁷ the Danes voted down the Treaty. This created considerable confusion. Box 14.4 provides the details.

The third spark came from France, which also organized a ratification referendum. Negative polls alarmed the exchange markets. Speculative attacks started immediately, initially targeting Italy (the lira was seriously overvalued by then) and the UK, which had finally joined the ERM a year earlier but at an overvalued exchange rate.⁸

In response to the speculative attacks, as mandated by the ERM agreements, the strong-currency central banks initially intervened in support of the embattled Banca d'Italia and Bank of England. By mid-September 1992, the attacks had become so huge that a frightened Bundesbank decided that truly unlimited interventions were not reasonable and stopped its support. Left to themselves, the lira and the pound withdrew from the ERM. The markets concluded that the ERM was considerably more fragile than hitherto admitted. Speculation shifted to the currencies of Ireland, Portugal and Spain. Each of them had to be devalued, twice. Contagion then spread to Belgium, Denmark and France, even though inflation in these countries had converged to below the German level and their currencies were not overvalued.

By the summer of 1993, huge amounts of reserves had been thrown into the battle and, yet, speculation was still going strong. In order to uphold the principle of the ERM, the monetary authorities adopted new ultra-large (± 15 per cent) bands of fluctuation.⁹ Figure 14.5 shows the ERM history of the French franc/German mark exchange rate as it moved throughout six realignments within the fluctuation band. The tight ERM was dead.

14.4.4 The EMS re-engineered

The post-crisis ERM agreed upon in 1993 differed little from a floating exchange rate regime. Bilateral parities could move by 30 per cent, a very wide margin. Unsurprisingly, therefore, the (non)system worked well because it left enough room for some degree of monetary policy autonomy. Figure 14.5 shows that the franc/mark fluctuated slightly outside of its earlier narrow ± 2.25 per cent range for a few years and then gently converged to its ultimate EMU conversion rate.

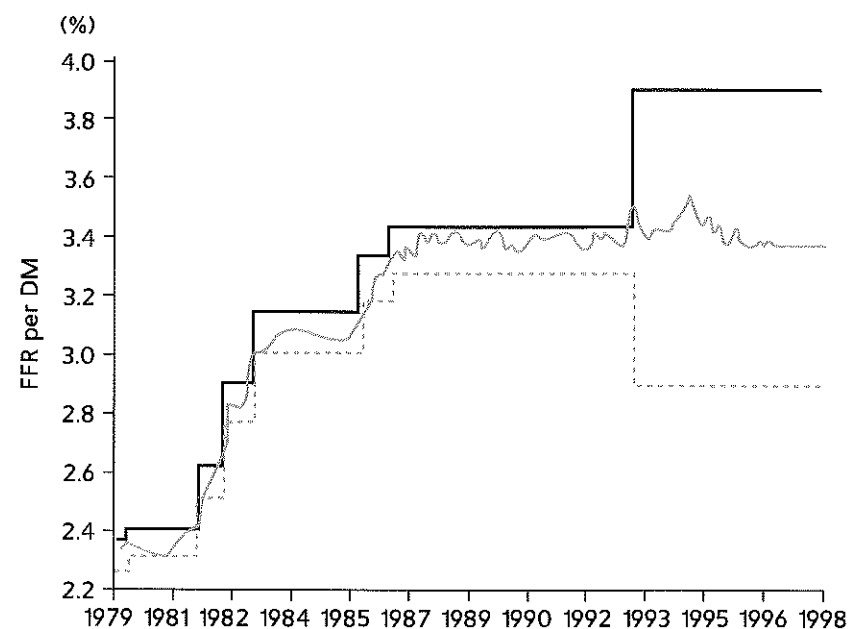
One precondition set by the Maastricht Treaty for joining the monetary union is at least 2 years of ERM membership (the other conditions are presented in Chapter 16). This means that the ERM is still in use as a temporary gateway to the Eurozone. Currently, its only member is Denmark, which has a non-official ± 1 per cent band. Figure 13.13 shows that it has given up monetary policy autonomy, so the arrangement is stable.

⁷ The No camp warned that a monetary union would encourage Germans to buy Danish properties along the common border.

⁸ The UK had joined the ERM a few months before, soon after John Major replaced Margaret Thatcher as Prime Minister, largely because her opposition to ERM membership appeared anachronistic in the midst of a wave of Euro-optimism.

⁹ Germany and the Netherlands independently agreed to keep their bilateral parity within the old ± 2.25 per cent margins. Belgium decided on its own to follow the same rule. In effect, these countries had given up monetary policy autonomy.

Figure 14.5 The French franc/German mark exchange rate in the ERM



Note: The exchange rate is expressed as the number of francs needed to buy one mark. An increase in the rate represents a mark appreciation or a franc depreciation.

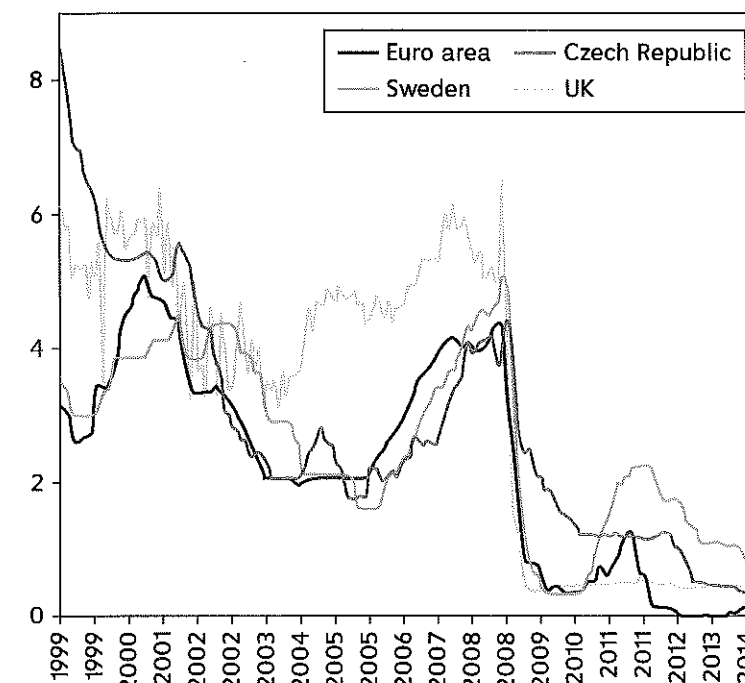
14.4.5 Assessment and lessons

The EMS represents an important step in the European monetary integration process. For the first time, European currencies defined their interrelationship without reference to an external store of value, like gold or the US dollar. It involved deep and comprehensive agreements among sovereign states that remain unmatched elsewhere in the world, with the exception of existing monetary unions. Its unplanned evolution into a de facto Greater Deutschmark Area made the adoption of a common currency a natural next step.

The tools developed in Chapter 13 provide the keys to understanding the ups and downs of the long road to monetary integration. The impossible trinity principle implies that a commitment to exchange rate stability requires the loss of monetary policy autonomy once capital is allowed to float freely. PPP, in turn, explains that lasting inflation differences are unsustainable if the exchange rate is fixed. This too pleads for a close alignment of monetary policies. Once autonomy is given up, the difference between a fixed exchange rate regime and a monetary union is mostly symbolic. Monetary neutrality means that, over the long run, monetary policy autonomy does not matter for economic growth or unemployment; put differently, there are no long-run costs of giving up a currency. However, monetary policy does matter in the short run and the costs can be significant. In the face of serious disturbances, the decision to bypass monetary policy can be painful. The Eurozone crisis has made that fact plain to see (Chapter 19), but it was clear much earlier, at least since the EMS crisis of 1993 as explained above.

Not all European countries have put exchange rate stability at the top of their priorities. The Czech Republic, Poland, Sweden and the UK have chosen monetary policy autonomy and correctly concluded that this precluded fixing the exchange rate or joining the Eurozone. (The UK briefly joined the EMS but withdrew soon thereafter; see above.) Figure 14.6 shows that, following the creation of the euro in 1999, the Czech Republic and Sweden did not make much use of their policy autonomy until 2010, when the Eurozone crisis erupted. The UK, on the other hand, did carry out a different monetary policy.

Figure 14.6 Interest rates



Note: Interbank interest rates.

Source: IMF

14.5 The Maastricht Treaty

Maastricht – unpronounceable by non-Dutch natives – is a picturesque Dutch town. In December 1991, the 12 heads of state and government of the EU gathered there to sign a treaty that replaced the European Community (EC) with the European Union (EU). The change of name was meant to signal that the Treaty was not just about economics but also included political considerations. Two new pillars – foreign and defence policies, justice and internal security – were added to the first, economic, pillar. Yet, the Maastricht Treaty will remain mostly known for having established the monetary union.

A monetary union was already in the back of the minds of the signatories of the Treaty of Rome in 1957. Chapter 1 describes the first attempt that failed, the Werner Report. The second attempt, the 1989 Delors Report, was successful. The report, commissioned by the European Council, was formally adopted in July 1989. Two intergovernmental conferences followed and their conclusions were presented to the Council meeting held in Maastricht at the end of 1991. Even though the debt crisis that started in 2010 casts a shadow on this achievement – and could lead to the demise of the euro as we know it – the Treaty marks the end of a long road: three decades of attempts to achieve a monetary union, summarized in Table 14.3. Maybe as a bad omen, the Treaty ratification process turned out to be eventful, as recalled in Box 14.4.

The Treaty described in great detail how the system would work, including the statutes of the European Central Bank (ECB). The Treaty specified entry conditions, also described in Chapter 16. These conditions – called the convergence criteria – were established mostly at the request of Germany. Germany, which considered the strong Deutschmark an essential achievement and a key economic success factor, was not willing to swap it for a weaker currency. Against much German public opinion, Chancellor Helmut Kohl was convinced of the paramount importance of European integration and was ready to abandon the mark. In return, he requested

Table 14.3 Steps of monetary integration

Towards Maastricht		Between Maastricht and the single currency		After Maastricht	
1970	Werner Plan	1994	European Monetary Institute (precursor of ECB)	1999	Monetary union starts
1979	European Monetary System starts	1997	Stability and Growth Pact	2001	Greece joins
1989	Delors Committee	1998	Decision on membership	2002	Euro coins and notes introduced
1991	Maastricht Treaty signed	1998	Conversion rates set	2007	Slovenia joins
1993	Maastricht Treaty ratified	1998	Creation of ECB	2008	Cyprus and Malta join
		2014	Banking Union	2009	Slovakia joins
				2011	Estonia joins
				2014	Latvia joins
				2015	Lithuania joins

Box 14.4 The bumpy ratification of the Maastricht Treaty

Any international treaty must be ratified by the signatories. The ratification procedure varies from one country to another: some countries require a referendum, others must obtain parliament's approval, yet others can decide between these two alternatives. The first country to undertake ratification of the Maastricht Treaty was Denmark, and it had to be by referendum. The Danish people chose to reject the Treaty by a small margin. Since European treaties are all-or-nothing, the Treaty looked dead before the other countries even had a chance to consider it. Yet, hoping that a legal solution would be found, it was decided to continue with the ratification process.

France offered to be the second country to consider ratification. In the hope of re-launching the project after the Danish vote, President Mitterrand chose the referendum procedure – he could have followed the more modest parliamentary approval procedure. As the campaign went on, support gradually eroded. When some polls reported a majority against the Treaty, leading to fears of a collapse of the whole project, the exchange markets became jittery and speculation gained momentum. In the event, Italy and the UK were ejected from the ERM and several currencies had to be devalued, some of them many times, as described above. Meanwhile, the French approved the Treaty by a narrow margin.

The Danes were asked to return to the polls, after the Danish government was given the right, included in a special protocol, not to adopt the single currency. This time, the Danes approved the Treaty. Just when the road seemed clear, the German Constitutional Court was asked for an opinion on whether the Treaty was compatible with Germany's constitution. The Court took several months to deliver its opinion, keeping the process hanging. The Court finally decided that the Treaty did not contradict the German Constitution. This allowed Germany to ratify the Treaty in late 1993, the last country to do so.

tough entry conditions.¹⁰ Germany would rather start the monetary union with a small number of like-minded countries than bring on board more countries several of which, in its eyes, had not adopted its culture of price stability. Greece, Italy, Spain and Portugal were not on the list of welcomed members. Neither was France, but Chancellor Kohl decided that politically France could not be kept out. It is striking that these are precisely the countries that ended up being caught in the public debt crisis that started in 2009.

The convergence criteria were designed with this objective in mind. Fulfilment of these criteria was to be evaluated by late 1997, a full year before the euro would replace the national currencies. In the end, partly through window-dressing and creative accounting, all the countries that wanted to adopt the euro qualified, with the exception of Greece, which had to wait for another 2 years.

On 4 January 1999, the exchange rates of 11 countries¹¹ were 'irrevocably' frozen. The old currencies formally became (odd) fractions of the euro, and the power to conduct monetary policy was transferred from each member country to the European System of Central Banks (ESCB), under the aegis of the European Central Bank (ECB) headquartered in Frankfurt. Ordinary citizens had to wait another 3 years, until January 2002, to see and touch euro banknotes and coins. Since then, 8 more countries (see Table 14.3) have joined the Eurozone, which includes 19 members as of January 2015. Nine European Union members have either decided not to join¹² or do not fulfil the convergence criteria.¹³

14.6 The crisis

In 2010, a severe crisis initially affected Greece and then moved on to Ireland, Portugal, Spain, Italy and Cyprus. It has profoundly transformed the monetary union, leading to a number of innovations while simultaneously revealing several flaws in the Maastricht Treaty. The first innovation was the creation of a Troika to rescue these countries. Composed of the IMF, the European Commission and the ECB, the Troika set conditions in exchange for large-scale emergency funds. The second innovation was an agreement to reduce the Greek public debt, well into the second year of the crisis. This debt reduction severely hurt Cypriot banks, which found themselves also forced to call in the Troika. In the meantime, pressure on Italy and Spain mounted, but no rescue was needed. This led to the third innovation, a new treaty designed to tighten oversight of national budgets. The ECB then called for a banking union, the fourth innovation. After a long delay, the ECB used its potentially infinite resources to quiet down the panic that had gripped the financial markets. This represents the fifth major innovation and could be the definitive step to grant, temporarily at least, some respite in the face of the raging crisis. Chapter 19 is dedicated to the study of these momentous events.

14.7 Summary

The process of monetary integration that led to the creation of the monetary union has taken decades and was not free of economic crises and political tensions. It is not complete either, as a significant number of countries have not adopted the euro, several of which have no intention of doing so, at least in the near future.

A couple of centuries ago, monetary integration was complete, and not merely in Europe, by default. A monetary union existed as all countries shared the same money – gold. There was no central bank and no monetary policy. The discovery of paper money changed all that. As is often the case with major discoveries, initially paper money was poorly understood. The Gold Exchange Standard experienced a painful dislocation in the inter-war period. The Bretton Woods system, created in 1944, offered what many European countries wanted: a degree of exchange rate stability. There followed various attempts to fix intra-European exchange rates without always paying due respect to the basic principles developed in the previous chapter. The logic of these principles eventually prevailed and led to the adoption of a common currency, with a common central bank, by countries attached to exchange rate stability.

¹⁰ Germany also insisted on a strong statute of independence for the European Central Bank. This issue is examined in detail in Chapter 16.

¹¹ Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal and Spain.

¹² The Czech Republic, Denmark, Hungary, Poland, Sweden and the UK.

¹³ Bulgaria, Croatia and Romania.

The great advantage of the Gold Standard lies in the automatic elimination of imbalances, Hume's price-specie mechanism. Countries with balance of payment surpluses see their money supply increase, which eliminates the surplus first through lower interest rates and capital outflows and then through rising prices that undermine external competitiveness. The same mechanism is at work in the monetary union. But it can be painful, as was the case with gold money and now again in the crisis-hit countries of the Eurozone.

The EMS was adopted in 1979 in an effort to preserve exchange rate stability within Europe following the end of the Bretton Woods system. Initially created to shield Europe from international monetary disturbances, all EU members are members of the EMS. The active part of the system, the ERM, is however optional, in the sense that some countries (Denmark and the UK) have a derogation while the Czech Republic, Hungary, Poland and Sweden have made it clear that they have no interest in joining an arrangement that is now a prerequisite for Eurozone membership.

The initial ERM was based on a grid specifying all bilateral parities and the corresponding margins of fluctuation, normally ± 2.25 per cent. ERM members were committed to jointly defending their bilateral parities, if necessary through unlimited interventions and loans. Realignments were possible, but required the consent of all members. This amounted to a tight and elaborate arrangement. Over time, as capital controls were removed, the nature of the ERM changed. At first it was unstable because countries were reluctant to give up on monetary policy autonomy. When they finally bowed to the rigour of the impossible trinity principle, they adopted the Deutschmark as an anchor. Circumstances created a further relapse, which led to the 1992–93 crisis, which effectively brought the arrangement to an end. Two currencies, the Italian lira and the British pound, left the ERM and the others adopted very wide margins of fluctuation, which pretty much made the mechanism irrelevant. By then, the Maastricht Treaty had been adopted, so the ERM had only to nominally survive until the launch of the euro.

The adoption of the common currency led to a new EMS. The euro is now the reference currency and the responsibility to uphold declared parities rests only on individual countries. The ERM is just one of the requirements for joining the Eurozone. As a result, countries join and then leave the ERM as they become candidates for Eurozone membership. Denmark is the only 'permanent' ERM member.

The Maastricht Treaty, signed in 1991 and ratified over the following 2 years, established the monetary union, to start on 1 January 1999. It included entry conditions designed to keep out those countries that were not wed to price stability. In the end, all candidate countries bar one were found to satisfy these conditions. Greece was admitted 2 years later. Cyprus, Estonia, Malta, Latvia, Lithuania, Slovakia and Slovenia have joined subsequently. The euro is now the currency of 19 countries.

Self-assessment questions

- 1 During the inter-war era, misalignments led to competitive devaluations, which then prompted a tariff war. Explain why.
- 2 What differences do you see between the Gold Exchange Standard and a monetary union?
- 3 What is the difference between the EMS and the ERM?
- 4 How does EMS-2 differ from EMS-1?
- 5 What are margins of fluctuation? What role do they play?
- 6 Why was it easy to foresee realignments with the ERM? How could speculators take advantage of that?
- 7 What do we mean when we say that the EMS-1 had become a 'Deutschmark area'? How did that happen and could it have been foreseen?
- 8 What did countries gain and lose by transferring from the ERM to monetary union?
- 9 The non-Eurozone EU member countries currently allow their exchange rates to float (relatively) freely. Denmark is a member of the ERM. Is this in line with the impossible trinity principle?
- 10 The Danish people have rejected by referendum joining the Eurozone. So Denmark has been a member of the ERM-2 since it was created in 1999, and the krone has almost never moved by more than 1 per cent vis-à-vis the euro. What difference would Eurozone membership make?

Essay questions

- 1 In retrospect it is claimed that the 1992–93 EMS crisis could have been anticipated. Why/why not? Once the crisis started, could Italy and the UK have stayed in the system, and if so under what conditions?
- 2 Would the Bretton Woods system have survived had it been constructed more tightly, for example like the ERM?
- 3 Some suggest a return to the Gold Exchange Standard. Discuss, using the tools developed in Chapter 13.
- 4 The inter-war decline of Britain is sometimes imputed to the 1924 return to the Gold Standard at the overvalued pre-war parity. Explain how and why lasting overvaluations hurt.
- 5 Proposals to return the world to the Gold Standard are regularly put forward. Evaluate the pros and cons of this idea.
- 6 'The creation of the European snake was a sign of US decline in monetary matters.' Comment.
- 7 Why did the ERM succeed while the snake failed?
- 8 Britain and Sweden have decided not to adopt the euro. Discuss the economic implications.
- 9 Some countries are attached to intra-Europe exchange rate stability, others are not. Comment.
- 10 Imagine a break-up of the euro. What is likely to happen to the exchange rate regimes of the ex-member countries?

Further reading: the aficionado's corner

On the Gold Standard:

Bordo, M. (1999) *The Gold Standard and Related Regimes*, Cambridge University Press, Cambridge. This book offers a comprehensive and modern analysis of the Gold Standard and its relevance to today's discussions.

On early efforts at monetary unification:

Bergman, M., S. Gerlach and L. Jonung (1993) 'The rise and fall of the Scandinavian currency union 1873–1920', *European Economic Review*, 37: 507–17.

Bordo, M. and L. Jonung (2000) *Lessons for EMU from the History of Monetary Unions*, Institute of Economic Affairs, London.

Holtfrerich, C.L. (1993) 'Did monetary unification precede or follow political unification of Germany in the 19th century?', *European Economic Review*, 37: 518–24.

On the evolution of the monetary union in Europe:

Eichengreen, B. (2007) 'Sui Generis Euro'. Download from www.econ.berkeley.edu/~eichengr/sui_generis_EMU.pdf.

Kenen, P.B. (1995) *Economic and Monetary Union in Europe*, Cambridge University Press, Cambridge.

Padoa-Schioppa, T. (2000) *The Road to Monetary Union in Europe: The Emperor, the Kings, and the Genies*, Oxford University Press, Oxford.

On exchange rate regime choices:

Bordo, M. (2003) *Exchange Rate Regime Choice in Historical Perspective*, Working paper no. 03/160, IMF.

Frankel, J. (1999) 'No single currency regime is right for all currencies or at all times', *Essays in International Finance*, International Finance Section, Princeton University.

Two studies show the difference between the officially declared regime and what countries actually do:

Levy-Yeyati, E. and F. Sturzenegger (2005) 'Classifying exchange rate regimes: deeds vs. words', *European Economic Review*, 49(6): 1603–35.

Reinhart, C. and K. Rogoff (2002) 'The modern history of exchange rate arrangements: a reinterpretation', *Quarterly Journal of Economics*, 119(1): 1–48.

A very useful description of the EMS is given in Chapter 1 of:

Kenen, P. (1995) *Economic and Monetary Union in Europe*, Cambridge University Press, New York.

Useful websites

The European Commission publishes annual Convergence Reports that evaluate each country's position relative to the EU: http://ec.europa.eu/economy_finance/publications/european_economy/convergence_reports_en.htm.

The Exchange Rate Mechanism is described on the European Commission's site at http://ec.europa.eu/economy_finance/euro/adoption/erm2/index_en.htm.

References

Eichengreen, B. (2002) *Lessons of the Euro for the Rest of the World*, December. Download from <http://repositories.cdlib.org/cgi/viewcontent.cgi?article=1005&context=ies>.

Mitchell, B.R. (1998) *International Historical Statistics: Europe 1750–1993*, Macmillan, London.

Annex: Hume's mechanism

Hume's mechanism is based on several results from Chapter 13: the long-run neutrality of money and PPP, and the short-run effect of money on interest rates. The neutrality principle is represented in panel (a) of Figure A14.1 by the upward-sloping schedule, which describes the proportionality between the money stock M and the price level P . In the same panel, we add a horizontal line meant to capture long-run PPP. When all prices are defined in terms of gold, the exchange rate is fixed and simply equal to unity ($E = 1$, as one gram of gold is one gram of gold everywhere!). Imagine that the price of domestic goods P rises while the price P^* of foreign goods remains unchanged. The domestic economy becomes less competitive and must eventually run a current account deficit.¹⁴ The horizontal line corresponds to the price level P at which exports equal imports and the current account is in equilibrium. Above this line, the current account is in deficit, and it is in surplus below the line. Point E represents the external equilibrium where the money stock M is consistent with the price level P .¹⁵

Where is the gold money stock coming from? Some of it may be dug out from the ground, the rest is imported. Ignoring for the time being financial flows, it is earned through exports and spent on imports. Thus a current account surplus results in an inflow of gold money, the modern-day equivalent of the accumulation of foreign exchange reserves, the counterpart to a balance of payments surplus. Conversely, gold flows out in the presence of a deficit. Now consider point A , where the stock of gold money has been large, resulting in a relatively high price level and, therefore, a current account deficit. The country sends more gold abroad to pay for its imports than it receives for its exports. The stock of gold money declines. This mechanism is represented by the downward-sloping schedule in panel (b) of Figure A14.1. It says that the balance of payments deteriorates as the stock of money increases (because the price level rises, as shown in the top left-hand panel). Point A in both panels describes a situation of external deficit, which corresponds to money stock M . The deficit means that gold is flowing out and the money stock contracts, which takes us to point A' in both panels. Over time, the price level declines and the deficit is reduced.¹⁶ At A' , the deficit is not yet fully eliminated, gold is still flowing out and the money stock keeps contracting, so we continue moving in the same direction. The process will not stop until point E is reached. At point E , the price level is just 'right', the balance of payments is in equilibrium and the money stock is stabilized. Obviously, a surplus such as point B will trigger an inflow of money (specie) and an increase in prices, bringing the economy gradually to point E . This link between money and external balance is Hume's price-specie mechanism.

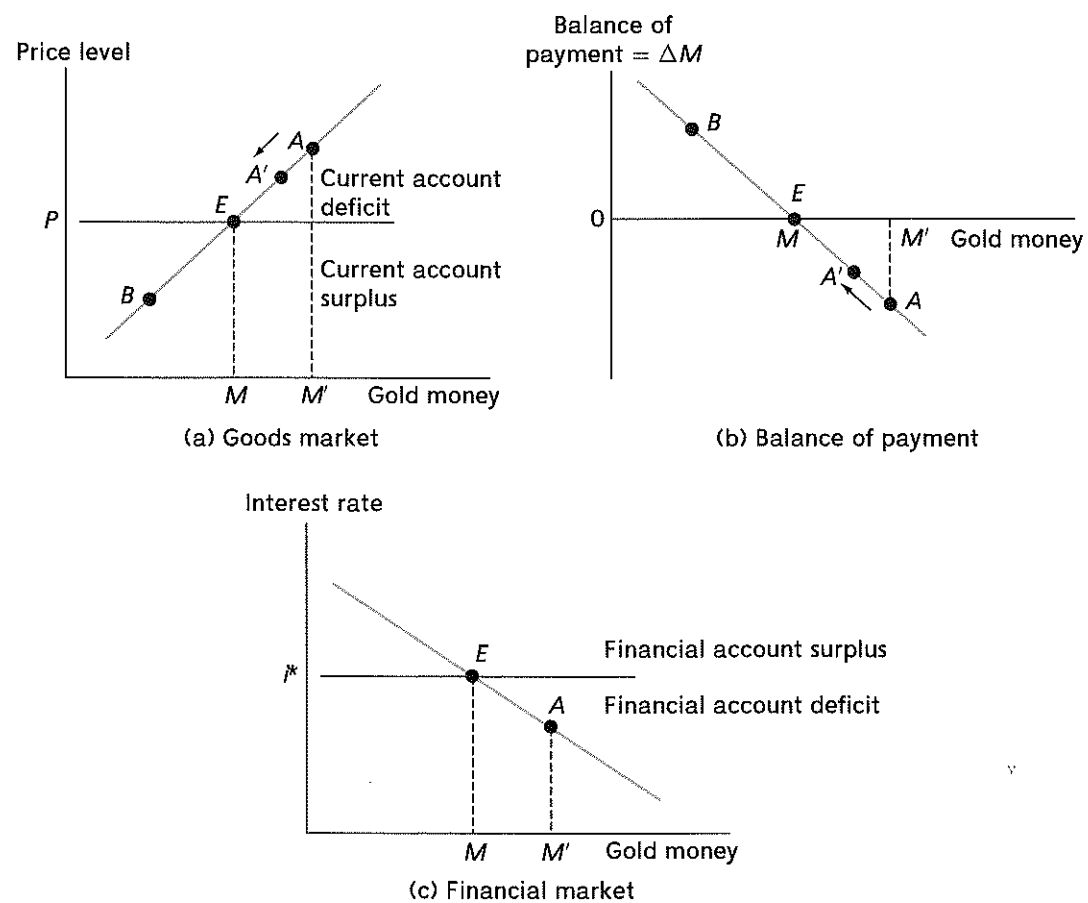
The mechanism that takes us from a situation of excessively high money and price level (point A) to equilibrium (point E) involves two steps: (1) the link from the balance of payments to the money stock in the right-hand panel, which is instantaneous; and (2) the link from money to the price level in the top left-hand panel, which takes time when prices are sticky. This is a long-run mechanism, as predicted by PPP and monetary neutrality. In the shorter run, most of the action takes place in the financial sector, which has been overlooked so far. To remedy this, we now look at panel (c) in Figure A14.1, which describes the financial market. The downward-sloping schedule describes the fact that an increase in the stock of money results in a lower interest rate. Since the exchange rate is fixed (remember, money is gold, everywhere), the interest rate parity principle presented in Chapter 13 implies that, when the domestic interest rate i is below the rate i^* prevailing abroad, it pays to borrow gold at home where interest is low and ship it abroad for lending at the higher interest rate. The horizontal line represents the interest rate parity condition. Along this line, the domestic interest rate is the same as abroad ($i = i^*$) and the financial account is in equilibrium. Above this line, the financial account is in surplus; below it, it is in deficit. The financial account is balanced

¹⁴ It is the trade balance that changes. It is assumed that the other components of the current account remain unaffected.

¹⁵ If we normalize the foreign price index to be $P^* = 1$, with $E = 1$ the real exchange rate is $EP/P^* = P$. Thus the price level P is also the real exchange rate and the horizontal line corresponds to the equilibrium exchange rate.

¹⁶ This is PPP, a long-run proposition. The detailed mechanism involves declining demand because money contracts and interest rates rise. Then, the Phillips curve mechanism predicts declining inflation.

Figure A14.1 Hume's price-specie mechanism



Note: The exchange rate is expressed as the number of francs needed to buy one mark. An increase in the rate represents a mark appreciation or a franc depreciation.

when the stock of gold money is M . If the stock of gold exceeds M , the interest rate is lower than i^* , capital flows out, gold is shipped abroad and the money supply contracts back to the equilibrium level M .

Overall, starting at point A in all three panels, where the money stock M' exceeds the long-run equilibrium level M , both components of the balance of payments – the current and the financial accounts – are in deficit. The overall deficit means that gold is flowing out. As the money supply shrinks, over time the price level declines and the interest rate rises. The capital flow route is very fast while the trade route is slower. Panel (b) of Figure A14.1 accounts for both channels. The key result is that they both work towards eliminating the external deficit. Likewise, they would eliminate a surplus if it arose.

Chapter

Optimum currency areas

Chapter Contents

15.1	The question, the problem and the short answer	350
15.2	Benefits of a currency area	352
15.3	Costs of a currency area	356
15.4	The optimum currency area criteria	361
15.5	Endogenous criteria?	367
15.6	Is Europe an optimum currency area?	369
15.7	Is Europe becoming an optimum currency area?	376
15.8	Summary	379
	Annex: Aggregate demand and aggregate supply	384

The European countries could agree on a common piece of paper ... they could then set up a European monetary authority or central bank ... This is a possible solution, perhaps it is even an ideal solution. But it is politically very complicated, almost utopian.

Robert Mundell (1973)