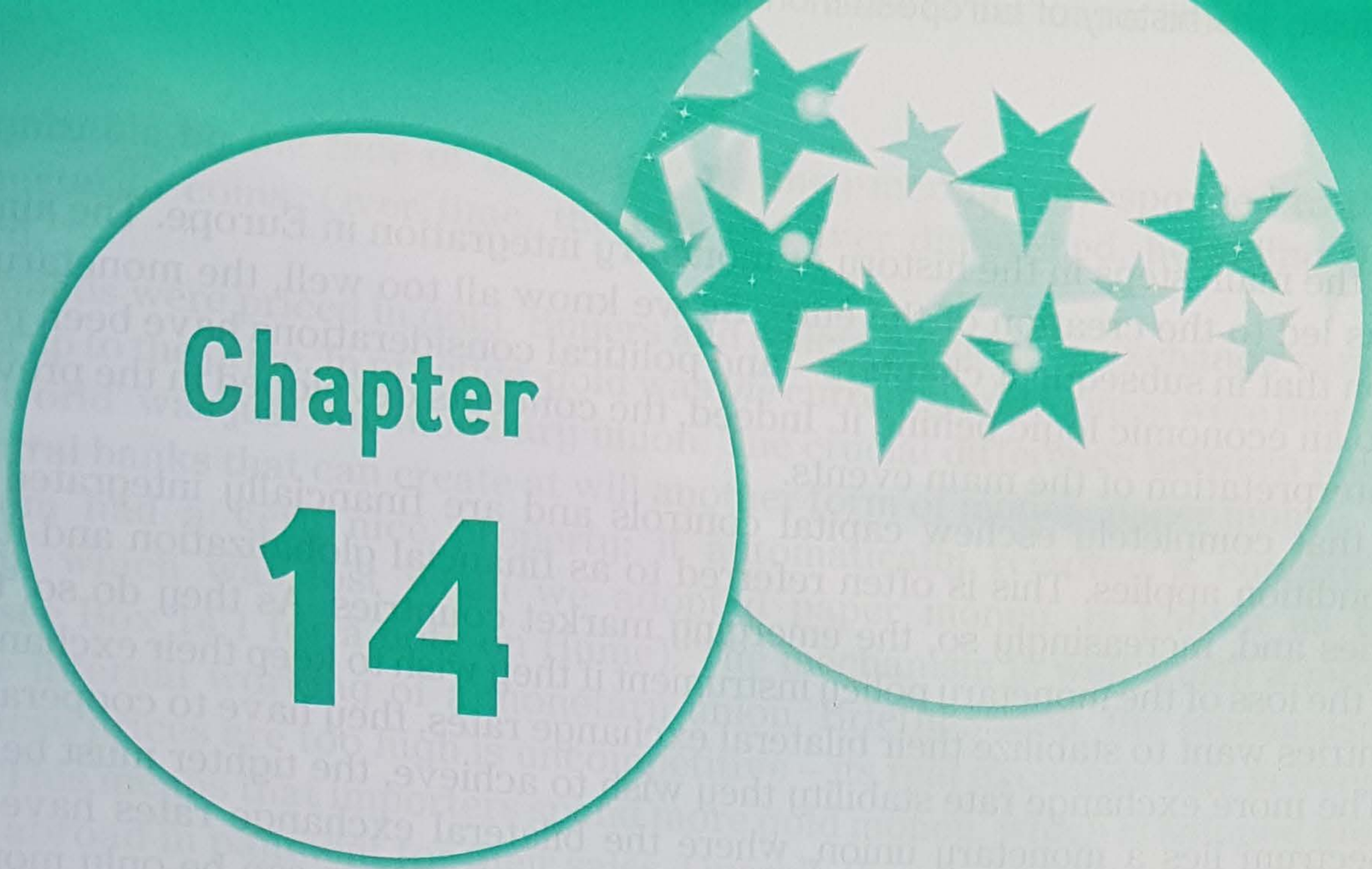


Chapter

14

The history of European monetary integration

Chapter Contents

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.

Among countries that completely eschew capital controls and 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. As they do so, they face the impossible trinity and the loss of the monetary policy instrument if they wish to keep their exchange rate fixed. When a group of countries want to stabilize their bilateral exchange rates, 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 rates have disappeared completely or, equivalently, have been set once and for all. In this case, there can be only monetary policy and, therefore, one central bank.

A number of European countries have travelled that 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. Under the Gold Standard, when the real exchange rate departed from its equilibrium level, the required correction had to be achieved through price (and wage) adjustments, a feature highly relevant to the Eurozone crisis. This is a warning, rather a reminder, that a monetary union may be very painful.

The chapter next looks at the inter-war period, characterized by the Great Depression, currency crises and the dislocation of international trade as the Gold Standard crumbled. Policy mistakes accumulated during these years provide a number of important lessons. These lessons have played a crucial role in shaping the post-Second World War global system, the Bretton Woods arrangement built around fixed exchange rates and the International Monetary Fund. From a European viewpoint, this system offered exchange rate stability. Its demise left Europe in the search for a replacement. The chapter recounts the path to the creation of 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, the EMS was no longer the solution to the quest for intra-European exchange rate stability. The logical response was a common currency.

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, then often forgotten.

14.1.1 The world as a monetary union

From time immemorial until the end of the nineteenth century, a bewildering variety of currencies were circulating side by side. However, each of these currencies was defined by its content of precious metal (chiefly gold and silver). Local lords endeavoured to control the minting of currency in their fiefdoms, 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. Over time, the role of silver diminished, heralding the emergence of the Gold Standard.[1]

In effect, goods were priced in gold. 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. The crucial difference between now and then is that we now have central banks that can create at will another form of money, paper money.

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. Briefly stated, the mechanism works as follows. A country whose prices are too high is uncompetitive – its real exchange rate is overvalued – and runs a trade deficit. This means that importers spend more gold money, which is shipped abroad, than exporters receive from abroad in payment for their sales. Overall, therefore, the stock of money declines. This can be interpreted as a contractionary monetary policy. Note that this is exactly what Figure 13.15 shows in the case of a fixed exchange rate regime, when the option of a parity change is ruled out. A more elaborate presentation is offered in the Annex.

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: Shutterstock /Georgios Kollidas

Next, we make use of a result presented in Chapter 15. There we show that when the money stock declines (here because the exchange rate is overvalued), eventually prices decline. The process must go on until competitiveness is restored – the real exchange rate returns to its equilibrium level. Thus, the flows of gold automatically eliminate the external deficit. The opposite occurs when prices are too low – the real exchange rate is undervalued – and the current account is in surplus: inflows of gold eventually lead to higher prices and a correction of the surplus. The opposite occurs with a deficit caused by overvaluation. The crucial point is that, in the absence of exchange rates, over- and undervaluations that cause external imbalances are self-correcting through price movements. This was the case under the Gold Standard and it is also the case in a monetary union.

The Gold Standard was an inherently stable 'world monetary union'. The underlying reason is the impossible trinity principle. Under this universal fixed exchange rate regime, there were no capital controls, even though physically moving gold across borders was cumbersome and necessarily slow (and perilous!). Monetary policy autonomy could not exist, therefore. Indeed, there was no central bank, at least not any authority creating paper or electronic money as we know them today. Beyond what could be extracted from the ground and rivers, in any country the stock of gold money was entirely determined by international movements and interest rates were adjusting according to market demand and supply.

[1] The true Gold Standard really lasted for about five decades until World War I. Beforehand, for centuries, gold and silver co-existed as metallic monies (alongside other metals actually). The exchange rate between gold and silver fluctuated like modern currency exchange rates. The presentation that follows ignores bimetallism and implicitly describes a much longer period, the centuries that precede the widespread use of fiat money, i.e. money created by central banks without metallic backing.

So far, we have looked only at gold movements driven by trade imbalances – shipments of gold from importers to their producers abroad. Capital, too, was flowing across borders for the same reasons as today, namely saving and borrowing, including lending by early bankers to kings and princes waging costly wars. The overall external balance, which is called the balance of payments, combines trade and capital flows

Great, then? Not so fast, please. Note that prices had to do the balancing work. They were going up and down, as were wages. What was bringing prices and wages down were long periods of recession and rising unemployment. Poverty was rampant and aggravated during these periods of adjustment. It is easy today 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; Box 14.2 provides a striking example. 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 Hume's mechanism, but they were not used, at least not sufficiently.

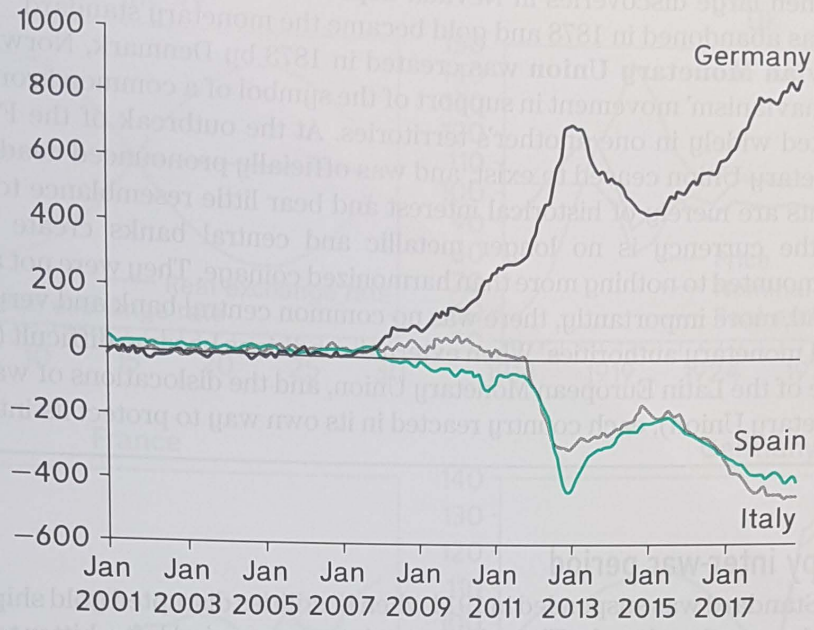
Box 14.2 TARGET 2: Hume's mechanism at work

In normal times, external imbalances within the Eurozone lead to flows of euros which are largely invisible. They are mostly mediated by banks that deal on money markets. When a bank wants to transfer money to another bank, it first sends it to the system, which then sends the money to the recipient bank. In normal times, many banks offer one another short-term credits, settling at the end of the day or the next day. During the crisis, banks became suspicious that some of them might fail, as some did actually. This interrupted the bulk of cross-border flows of money. The risk was that the monetary union, which requires seamless transactions within the Eurozone, might stop functioning. This is when TARGET 2 came into play. TARGET 2 (for Trans-European Automated Real-time Gross settlement Express Transfer system) is the second generation of the payment system for banks. It became the only – or nearly so – way for banks to pay one another.

When a country runs a balance of payment deficit, collectively all the banks located in this country must send money out. The country builds up a debit position within TARGET 2, which is guaranteed by the ECB. Conversely, a surplus country builds a credit position. During the crisis, the ECB was keen to keep payments flowing and granted freely these debit and credit positions, in effect borrowing from and lending to banks. Figure 14.1 shows the balances of three major countries: Germany, Italy and Spain. While these balances were virtually nil until the crisis, they started to grow in 2008. Germany, the beneficiary of large flows from countries with troubled banks, built up a very large credit position. Italy and Spain, with many troubled banks, suffered massive capital outflows and built up large debit positions.

Surprisingly, these positions have not declined, they even increased, when the crisis eased up and banks started again to do business with one another. We would have expected them to clear up their borrowing and lending vis-à-vis the ECB. The reason is that, starting in 2015, the ECB has adopted a new policy – described in Chapter 19 – once the interest rate was brought down to zero. The policy, called Asset Purchase Programmes, consists in lending to banks vast amounts of money to increase their incentives to lend to their customers. As it turns out, banks hold more money than they wish and they do not park these resources in the countries where banking was previously fragile (e.g. Italy and Spain) but rather in the banks of other countries like Germany.

Figure 14.1 Positions of Germany, Italy and Spain (billions of euro)



Source: Based on data from ECB.

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.[2] Efforts were then made, not fully successfully, to put some order into what we would now call the international monetary system. As Box 14.3 explains, some countries even decided to share the same currency.

Box 14.3 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, in part 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

[2] 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.

empire shifted from silver to gold and weakened French finances by imposing war reparations to be paid in gold. When large 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 one another'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 interests.

14.1.2 The unhappy inter-war period

The Gold Exchange Standard was suspended in 1914 when hostilities disrupted gold shipments and therefore the ability to pay for international trade. 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 never quite fully recovered. In many ways, the post-1945 European economic and political integration represents an effort to prevent any repeat of the inter-war disaster.

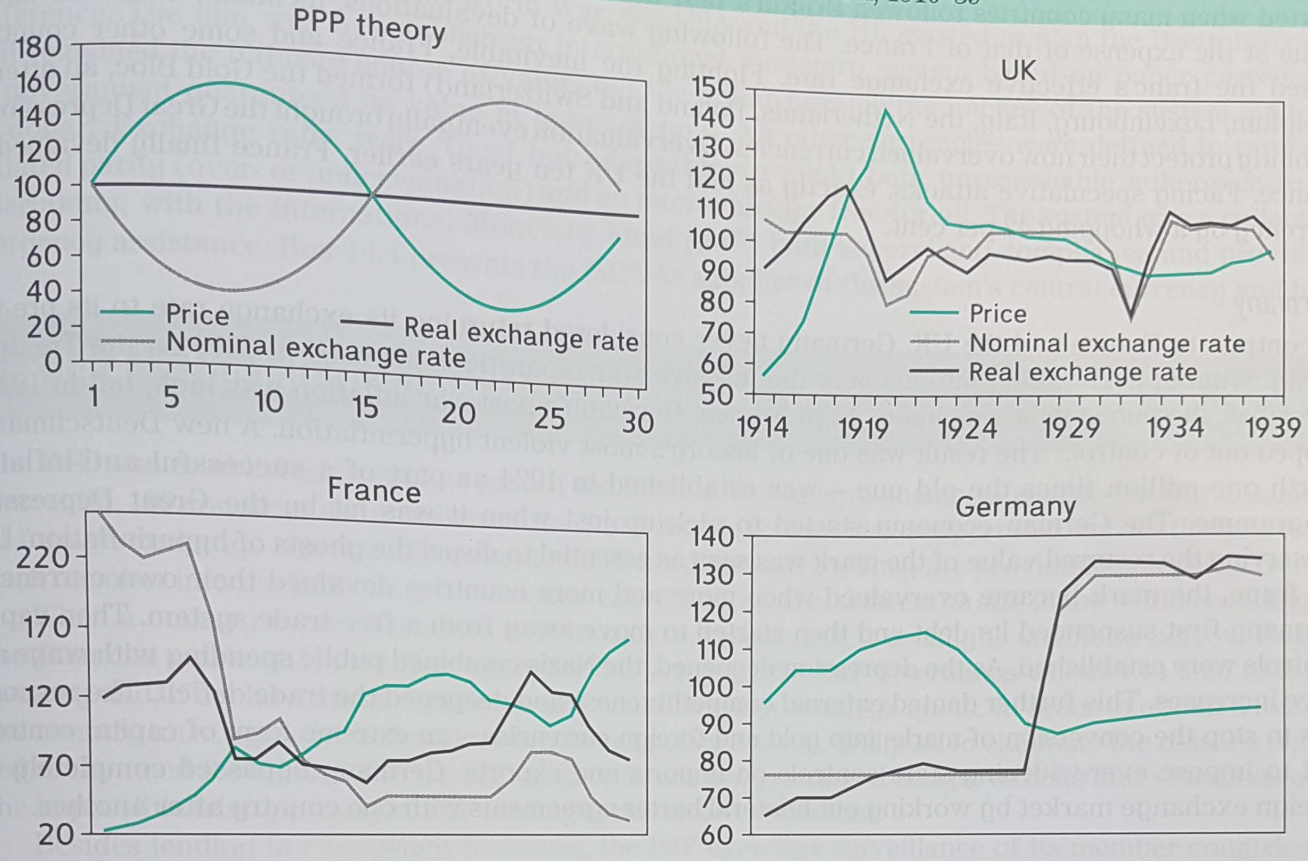
Wars are expensive and strain budgets, especially as governments are loath to raise taxes. The two alternatives are either to issue debt or to run the printing press. Both were used during the First World War. Prices were often kept artificially stable through rationing schemes; when the war ended and prices were freed, the accumulated inflationary pressure burst. Some of the most famous hyperinflation episodes 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 policymakers 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. Figure 14.2 shows the evolution of the price level and the nominal and real exchange rates, all normalized to be equal to 100 over the period displayed. The first chart represents the stylized case when the real exchange is constant because the price level and the nominal exchange rate exactly offset each other year after year. We know from Chapter 13 that this is not the case in practice and that PPP emerges only in the long run, but this is a good reference point to evaluate the actual experience in the UK, France and Germany during the inter-war period.

The UK

The British price level about doubled during the war, much more than in the USA, the newly emerging economic powerhouse. Since the nominal exchange rate was kept fixed relative to gold, the result was a sharp real appreciation. The British authorities then temporarily suspended the exchange rate peg and external competitiveness recovered. Yet, they considered that Britain's traditional leadership in international monetary matters was tied to the gold link of sterling. In the face of a mounting US challenge, they decided to return the much-depreciated sterling to its pre-war gold parity, 'to look the dollar in the face'. This decision has been recognized as a landmark policy mistake. Returning sterling to its pre-war value would have raised the real exchange rate had domestic prices not declined sharply through deflation, a lengthy and painful process brought about by economic stagnation. 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.

Figure 14.2 Prices and exchange rates: France, Germany and the UK, 1910–39



Note: Both exchange rates, nominal and real, are expressed vis-à-vis the US dollar. Along with the consumer price index, they are computed to be equal to 100 on average during the whole inter-war period.

Source: Based on data from Òscar Jordà, Moritz Schularick and Alan M. Taylor (2017). 'Macrofinancial History and the New Business Cycle Facts', in M. Eichenbaum and J. A. Parker (eds), *NBER Macroeconomics Annual 2016*, volume 31. Chicago: University of Chicago Press.

When Wall Street crashed in 1929, the British economy was already weak, still facing deflation. The UK was in no position to deal with yet more hardship and was hit by the Great Depression. 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. But, in 1933, the USA also abandoned the Gold Standard and devalued the dollar by 40 per cent, and many other countries followed suit. A weaker dollar mechanically meant a stronger sterling and British competitiveness again was compromised. An ambition was gone, and the price was high: a decade of miserable growth.

France

France, too, initially intended to return the franc to its pre-war gold parity, but it lost control of inflation for a period of several years. During the war the French public debt had grown significantly more than in the UK. 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, which wiped out much of the debt. 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 parity. 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. Conveniently,

the undervaluation helped France to sail through the Great Depression relatively unscathed. Trouble started when many countries followed Britain's 1931 decision to devalue. Their renewed competitiveness came at the expense of that of France. The following wave of devaluations, including of the US dollar, raised the franc's effective exchange rate. Fighting the inevitable, France and some other countries (Belgium, Luxembourg, Italy, the Netherlands, Poland and Switzerland) formed the Gold Bloc, an attempt to jointly protect their now overvalued currencies. Overvaluation eventually brought the Great Depression to France. 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 its exchange rate to its pre-war parity. Without even taking into account the massive war reparations imposed in 1919 by the Treaty of Versailles, the public debt was huge. 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 hyperinflation. A new Deutschmark – worth 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. Preserving 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 – that is, when they set a fixed gold value for their paper monies – France and the UK had to forgo autonomy over their monetary policies. This is when the pattern of exchange rates and prices resemble the theoretical predictions of the PPP principle. 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 and regulating prices to prevent PPP from asserting itself.

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 policymakers, who started to realize the complexity of paper money. Among the many lessons learnt, two are relevant for the monetary integration process:

1. 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.
2. 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'.

[3] This is why pre-hyperinflation prices and exchange rates are not shown in Figure 14.2 – the scale doesn't allow for them!

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. Box 14.4 presents the IMF. 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.

Box 14.4 The International Monetary Fund

The IMF was established in 1944 as part of the Bretton Woods agreements, alongside the World Bank. Currently, 189 countries are members of the Fund. Its role is to provide support to countries that run out of foreign exchange reserves. To do so, the IMF needs resources. They are provided by deposits from each member into the IMF of a given amount, called a quota, that reflects its size in the world economy.

When a country faces difficulties with its external payments, it usually is unable to borrow from the financial markets. It may then apply for IMF lending. The IMF determines whether to lend to the country and, if so, how much. Loan sizes are related to each country's quota. In order to obtain a loan, the country must agree to undertake a number of policy actions, designed to eliminate the reasons that led to the need for a loan. The most frequent reasons are protracted budget deficits and violations of the impossible trinity principle. IMF lending is therefore conditional.

Besides lending in emergency situations, the IMF exercises surveillance of its member countries. Once a year, in principle, the IMF examines each member country's economic and financial situation. The process leads to policy recommendations. The purpose of surveillance is to prevent payment difficulties. It also allows the Fund to be familiar with the economic and financial situation of each member.

The IMF is controversial for two main reasons. First, its recommendations and conditions are often unwelcome by its members, if only because it asks them to change policies that they have chosen, and yet are unsustainable. Second, its decisions are made by votes of its membership, whereby each country's vote is proportional to its quota. The USA holds the largest quota. The developing countries routinely complain that they are under-represented.

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.

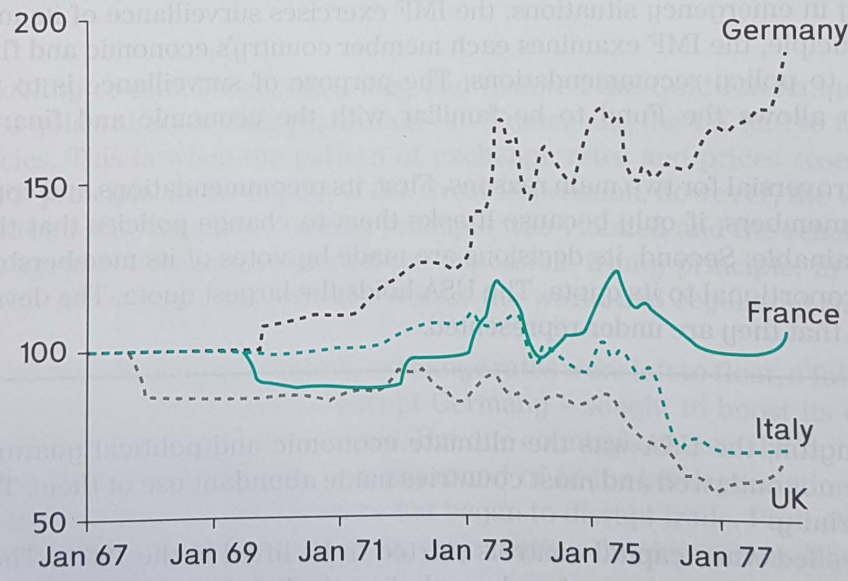
With widespread capital controls in place, most countries actively used monetary policy to prop up growth, without much concern regarding inflation. By the late 1960s, however, inflation started to rise in a number of countries, including the USA. The anchor of the system, the US dollar, gradually became 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 inter-war period, they wanted to maintain among themselves fairly fixed exchange rates and reassurances that competitive devaluations would be held in check. The Bretton Woods system 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 autonomous. 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. With the money stock growing at a sustained rate, inflation would then creep up gradually. Not all countries allowed inflation to take hold, though. Germany and Switzerland, which had forfeited capital controls, used monetary policy sparingly and kept inflation in check. With the nominal exchange rates fixed and growing inflation differentials, real exchange rates started to move away from their equilibrium levels.[4] PPP implies that this situation cannot last for too long. External deficits deepened in those countries experiencing inflation and surpluses emerged in countries like Germany and Switzerland. In the late 1960s, France and the UK, two relatively high-inflation currencies, devalued their currencies. The realization that exchange rates were as adjustable as they were fixed, triggered speculation and many more countries devalued. Soon European nominal exchange rates became unhooked, as Figure 14.3 shows. PPP was asserting itself.

Figure 14.3 Dollar exchange rates, January 1967–December 1977



Source: Based on data from IMF.

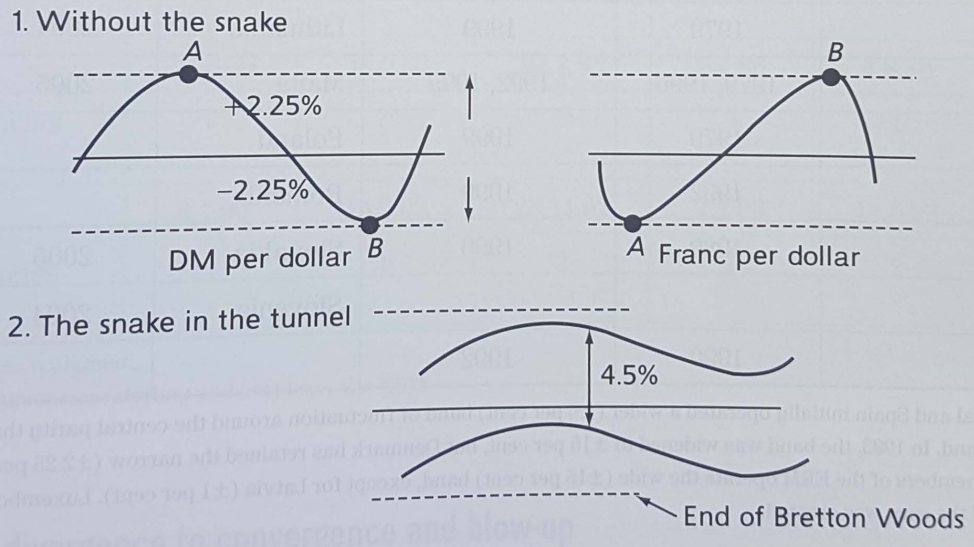
As explained in Box 14.5, the snake was a loose arrangement. It did not deal with the impossible trinity principle: capital controls were often in place but they were not tight and could increasingly be evaded, while there was no restriction on national monetary policies. When inflation rose abruptly 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.

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

Box 14.5 The snake in the tunnel

The Bretton System prescribed a fixed exchange rate. Each country was committed to declare a parity vis-à-vis the US dollar but there was a little bit of built-in flexibility as it was permitted to let the actual exchange rate fluctuate around the parity. The margins of fluctuations were set at ±1 per cent. In 1971, in a last-ditch effort to save the Bretton Woods system, it was agreed to widen the margins of fluctuations ±2.25 per cent. Non-dollar currencies, like the mark and the franc, would now fluctuate pairwise by as much as 9 per cent vis-à-vis each other, as is shown in the upper part of Figure 14.4. 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 in 1973, the tunnel was gone but the EC countries resolved to keep the snake, that is, 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 14.4 The European snake (all currencies relative to the US dollar)



The snake had embodied the determination of policymakers 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 in the tunnel 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, the European currencies would be defined vis-à-vis one another.

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 currently 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	Croatia		
Denmark	1979	Still a member	Cyprus	2005	2008
Finland	1996	1999	Czech Rep.		
France	1979	1999	Estonia	2004	2011
Germany	1979	1999	Hungary		
Greece	1998	2001	Latvia	2005	2014
Ireland	1979	1999	Lithuania	2004	2015
Italy	1979, 1996	1992, 1999	Malta	2005	2008
Netherlands	1979	1999	Poland		
Portugal	1992	1999	Romania		
Spain	1989	1999	Slovakia	2005	2009
Sweden			Slovenia	2004	2007
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 one another, 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 a 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, or 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.

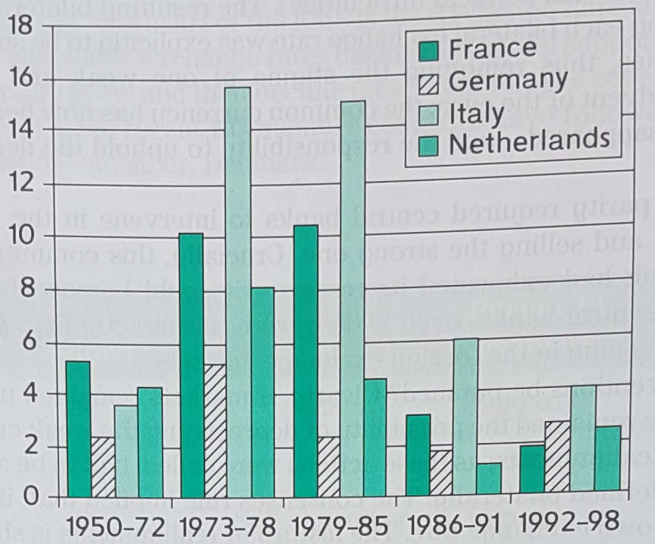
[b] In addition, two currencies (sterling and lira) leave the ERM.

14.4.2 From divergence to convergence and blow-up

Between 1979 and 1987, realignments occurred no fewer than 12 times, once every eight 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, which allowed for some degree of monetary policy autonomy. The result was different inflation rates, as indicated in Figure 14.5. 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 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.

Figure 14.5 Inflation during the ERM years



Source: Based on data from IMF.

With all central banks emulating the Bundesbank, inflation rates started to converge. For nearly six 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, the only one to enjoy 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 six years looked good,[6] but inflation rates never fully converged (see Figure 14.5). While countries such as Denmark and 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

[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.

the ratification process was Denmark, where law mandates that international treaties be submitted to referenda. For a variety of reasons, some quite obscure,[7] the Danes voted down the Treaty. This created considerable confusion. Box 14.6 provides the details.

Box 14.6 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 relaunching 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.

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.

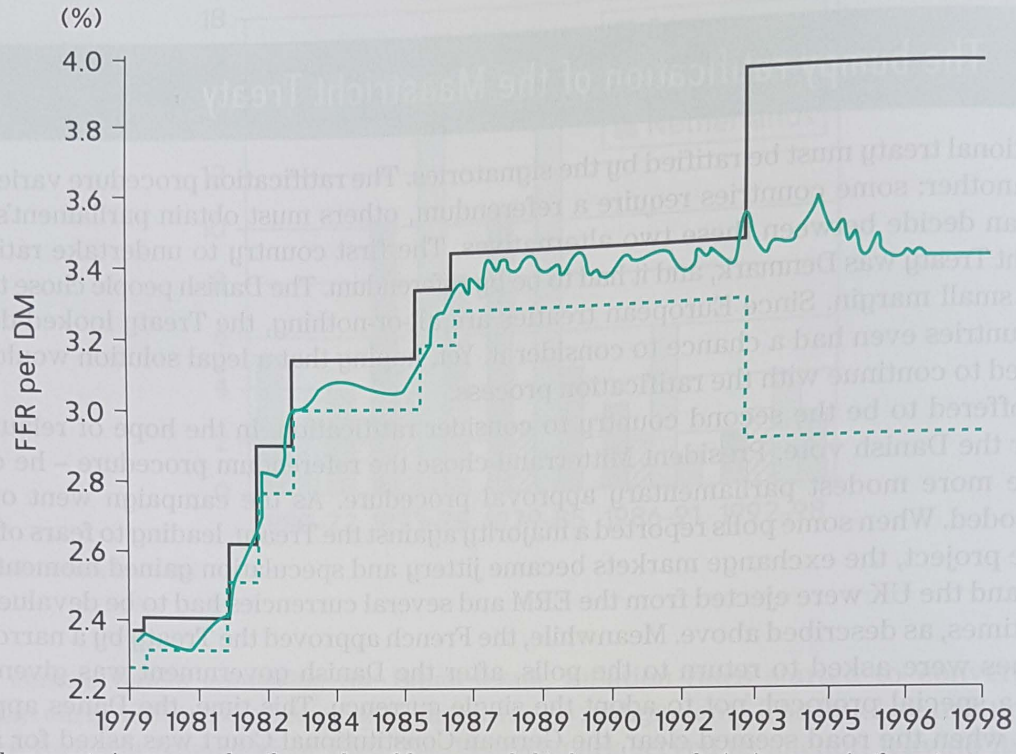
By the summer of 1993, huge amounts of reserves had been thrown into the battle and, yet, speculation was still going strong. In order to uphold the principle of the ERM, the monetary authorities adopted new ultra-large (±15 per cent) bands of fluctuation.[9] Figure 14.6 shows the ERM history of the French franc/German mark exchange rate as it moved throughout six realignments within the fluctuation band. The tight ERM was dead.

[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 14.6 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.

14.4.4 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 14.6 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 two 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 13.12 shows that it has given up monetary policy autonomy, so the arrangement is stable.

14.4.5 Assessment and lessons

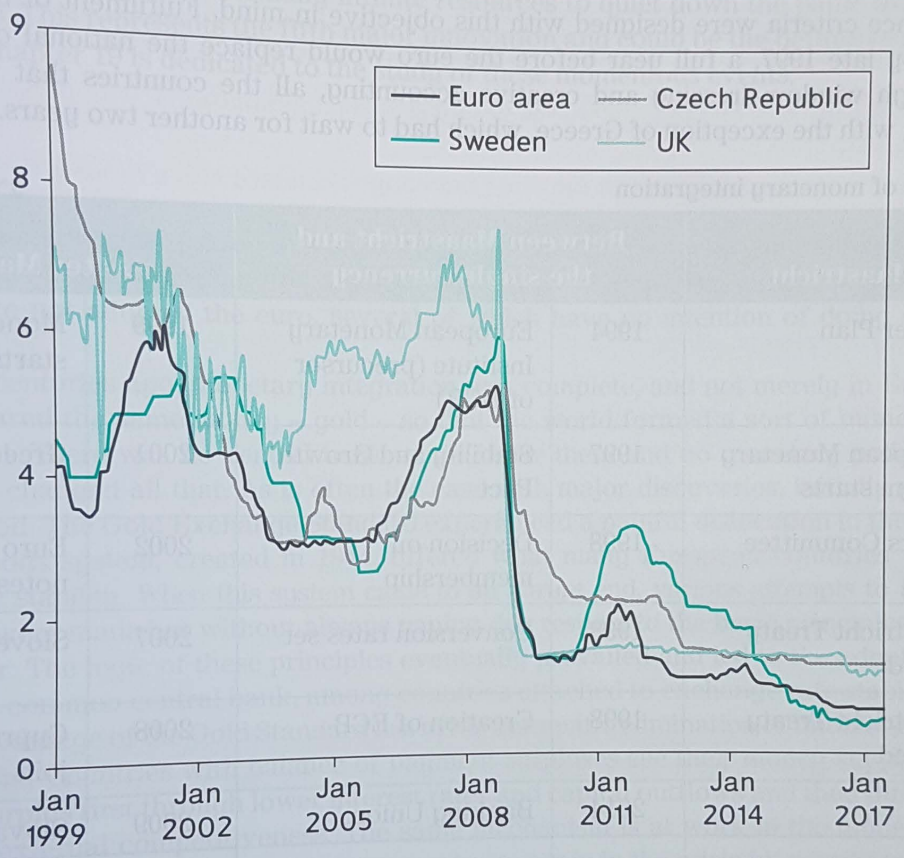
The EMS represents an important step in the European monetary integration process. For the first time, European currencies defined their interrelationship without reference to an external store of value, like gold or the US dollar. It involved deep and comprehensive agreements among sovereign states 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. On the other hand, in the face of serious disturbances, the loss of the exchange rate tool can be painful. The Eurozone crisis

has made it 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, among others, 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 14.7 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 14.7 Interest rates



Note: Interbank interest rates.

Source: Based on data from 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, 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 was not willing to swap the strong Deutschmark, which it considered an essential achievement and a key economic success factor, for a weaker currency. Against much of 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 tough entry conditions.[10] Germany would rather start the monetary union with a small number of like-minded countries than bring on board countries 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 two years.

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

On 4 January 1999, the exchange rates of 11 countries[11] were 'irrevocably' frozen. The old currencies formally became (hard to remember) 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 three years, until January 2002, to see and touch euro banknotes and coins. Since then, eight more countries (see Table 14.3) have joined the Eurozone, which includes 19 members as of January 2015. Nine European Union members (including the UK) have either decided not to join[12] or do not fulfil the convergence criteria.[13]

[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.

14.6 The crisis

In 2010, a severe crisis initially affected Greece, and then moved on to Ireland, Portugal, Spain 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, with Spain finally receiving financial support. 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 quiet down a 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. All countries shared the same money – gold – so that the world formed a sort of monetary union but in a different world. There was no central bank as we know them 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. When this system came to an abrupt end, various attempts to fix intra-European exchange rates were made but 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, among countries attached to exchange rate stability.

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 countries, Italy and the UK, 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 since a referendum barred its government to join the Eurozone.

The Maastricht Treaty, signed in 1991 and ratified over the following two 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 two 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 the 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?

References and further reading

Further reading: the aficionado's corner

On the Gold Standard:

Bordo, M. (Undated) 'Gold Standard', *The Library of Economics and Liberty*, https://www.econlib.org/library/Enc/GoldStandard.html.

A concise description, with many of the details hidden in this chapter's presentation.

On early efforts at monetary unification:

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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 https://ec.europa.eu/info/business-economy-euro/euro-area/enlargement-euro-area/introducing-euro/adoption-fixed-euro-conversion-rate/erm-ii-eus-exchange-rate-mechanism_en.

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.

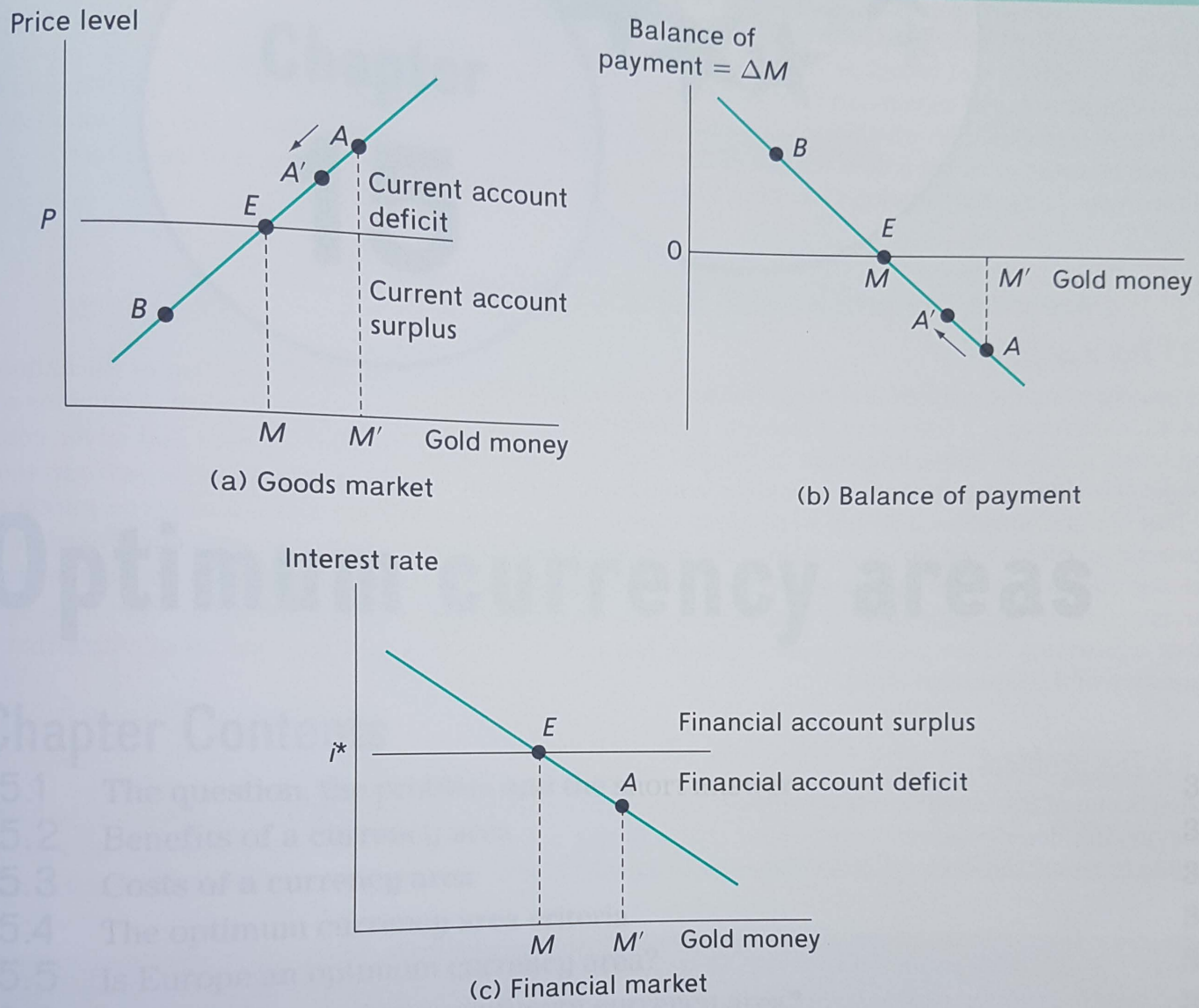
The mechanism that takes us from a situation of excessively high money and price level (point A) to equilibrium (point E) involves two steps: (1) the link from the balance of payments to the money stock in the right-hand panel, which is instantaneous; and (2) the link from money to the price level in 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.