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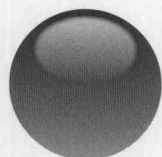
economics of monetary union

ninth edition



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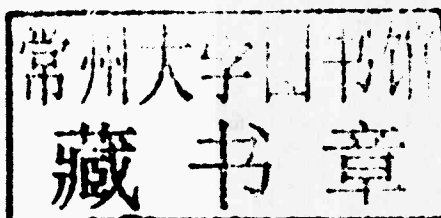
Economics of Monetary Union

NINTH EDITION

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Introduction

Economists are often criticized because they are very bad at predicting crises and very good at explaining afterwards why these crises were inevitable. However, if there is one area where this criticism does not apply, it is in the economics of monetary union. In the 1980s and early 1990s, when the European leaders were discussing the plans for a monetary union in Europe, economists, including the present author, warned that a monetary union in Europe would be a risky undertaking, mainly because it is a monetary union lacking a budgetary union. The European leaders brushed this criticism aside and created an incomplete monetary union that, because of its incompleteness, would be fragile. This prediction has now turned out to be vindicated.

As in the previous editions of this book the focus in the first part is on the costs and benefits of a monetary union. In this edition, more emphasis will be put on an analysis of why the incompleteness of the Eurozone creates additional costs, and why it leads to problems of sustainability. This will lead us to study different ways to 'complete' a monetary union. Inevitably this will bring us to the question of how a monetary union can be embedded in a political union.

The analysis of the costs and benefits of a monetary union also leads us to the question of whether the UK, Denmark, Sweden, and new EU member countries are likely to benefit from being members of the Eurozone. In addition, we will have a few things to say about whether other parts of the world would benefit from monetary unification.

The start of EMU on 1 January 1999 was a historic event. There have been few attempts ever to introduce a monetary union without the force of arms. The monetary union in Europe creates problems that are exciting to analyse. The second part of this book deals with these problems of running a monetary union in Europe. We will analyse how the European Central Bank (ECB) was designed to conduct a single monetary policy. We will also discuss some of the shortcomings in this design. The issues of the political independence and accountability of the ECB will loom large in this discussion.

Many of the issues with which the ECB is confronted today are practical ones. How does the ECB make a choice between the different targets a central bank should pursue? What are the most appropriate instruments to achieve these targets? Is the ECB attaching too much importance to the money stock? How can it improve its credibility? How should the ECB react to different business cycle developments in the Eurozone and what are the relations between monetary and budgetary policies?

Since the dramatic eruption of the financial crisis new issues and questions have arisen. How should the ECB deal with the financial crisis that erupted in 2007? Is its response sufficient and does it have the right instruments to face this crisis? These questions will also lead us to formulate reforms that are needed to prevent the emergence of future crises. In this connection we will criticize the singular focus of the ECB on inflation targeting, and we will argue that modern central banks need to enlarge the list of objectives they pursue. We will also stress the need for the European Central Bank to be a lender of last resort both in the banking sector and in the markets of government bonds.

The study of the workings of a monetary union is fascinating. So many new ideas are still to be discovered. My first hope is that this book can contribute to the discovery of these ideas. My second hope is that I can convey to the reader the same sense of excitement that I have when I study the subject.

This book would not have come about without the intense discussions and debates with colleagues and students in which I have been involved over many years. Many of them were kind enough to read parts of the manuscript and to formulate their comments and criticism. In particular, I am grateful to Filip Abraham, Michael Artis, Juan José Calaza, Bernard Delbecque, Harris Dellas, Casper de Vries, Hans Dewachter, Sylvester Eijffinger, Michele Fratianni, Vitor Gaspar, Wolfgang Gebauer, Francesco Giavazzi, Daniel Gros, Søren Harck, Romain Houssa, Gerhard Illing, Henk Jager, Catrinus Jepma, Lars Jonung, Georgios Karras, Clemens Kool, Ivo Maes, Ugo Marani, Carlos Marinheiro, Hans-Werner Sinn, Jacques Mélitz, Stefano Micossi, Wim Moesen, Francesco Mongelli, Franco Praussello, Marc-Alexandre Sénégas, George Tavlas, Francisco Torres, Alfred Tovas, Niels Thygesen, and Jürgen von Hagen. During the years leading to the ninth edition of this book I was very much helped by the competent research assistance of Yunus Aksoy, Cláudia Costa Storti, Marianna Grimaldi, Yuemei Ji, Pablo Rovira Kaltwasser, Vivien Lewis, Frauke Skudelny, Magdalena Polan, and Nancy Verret. My gratitude goes especially to Yuemei Ji who patiently checked this ninth version of the manuscript.

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Part 1

Costs and Benefits of Monetary Union

1

The Costs of a Common Currency

Introduction

The costs of a monetary union derive from the fact that when a country relinquishes its national currency, it also relinquishes an instrument of economic policy, i.e. it loses the ability to conduct a national monetary policy. In other words, in a full monetary union the national central bank either ceases to exist or will have no real power. This implies that a nation joining a monetary union will not be able any more to change the price of its currency (by devaluations and revaluations), to determine the quantity of the national money in circulation, or to change the short-term interest rate.

One may raise the issue here of what good it does for a nation to be able to conduct an independent monetary policy (including changing the price of its currency). There are many situations in which these policies can be very useful for an individual nation. The use of the exchange rate as a policy instrument, for example, is useful because nations are different in some important senses, requiring changes in the exchange rate to occur. In the next section we analyse some of these differences that may require exchange rate adjustments. In later sections we analyse how the loss of monetary independence may be costly in some other ways for an individual nation.

The analysis that follows in this chapter is known as the 'theory of optimum currency areas'. This theory, which has been pioneered by Mundell (1961), McKinnon (1963), and Kenen (1969), has concentrated on the cost side of the cost-benefit analysis of a monetary union.¹

1.1 Shifts in demand (Mundell)

Consider the case of a demand shift developed by Mundell (1961) in his celebrated article on optimum currency areas.² Let us suppose first that two countries which we call France and Germany form a monetary union. By that we mean that they have abandoned their national currency and use a common currency, the euro, which is managed by a common central bank, the ECB. Let us assume further that for some reason consumers shift their

¹ For surveys of this literature, see Ishiyama (1975); Tower and Willett (1976); and Mongelli (2002).

² See Mundell (1961).

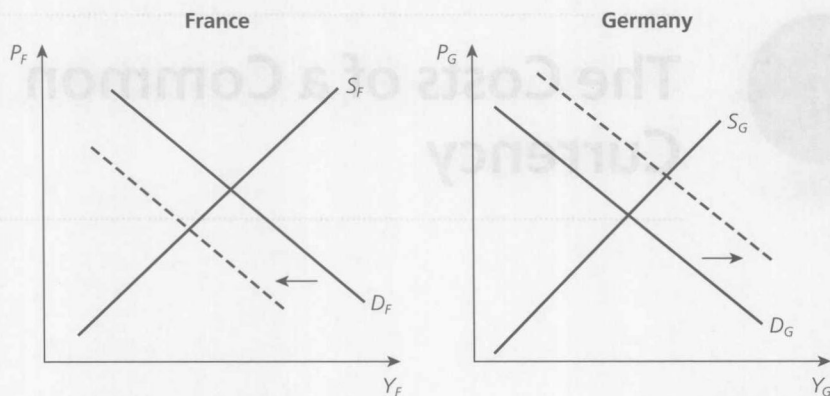


Figure 1.1 Aggregate demand and supply in France and Germany.

preferences away from French-made to German-made products. We present the effects of this asymmetric shock in aggregate demand in Fig. 1.1.

The curves in Fig. 1.1 are the standard aggregate demand and supply curves in an open economy of most macroeconomics textbooks.³ The demand curve is the negatively sloped line indicating that when the domestic price level increases the demand for the domestic output declines.⁴

The supply curve expresses the idea that when the price of the domestic output increases, domestic firms will increase their supply, to profit from the higher price. In addition, each supply curve is drawn under the assumption that the nominal wage rate and the price of other inputs (e.g. energy, imported inputs) remain constant. Changes in the prices of these inputs will shift these supply curves.

The demand shift is represented by an upward movement of the demand curve in Germany, and a downward movement in France. As will be discussed later, it will be important to know whether these demand shifts are permanent or temporary. For the moment we assume that these shifts are permanent, e.g. due to a change in consumer preferences. The result of these demand shifts then is that output declines in France and increases in Germany. This is most likely to lead to additional unemployment in France and a decline of unemployment in Germany.

Both countries will have an adjustment problem. France is plagued with reduced output and higher unemployment. Germany experiences a boom, which also leads to upward pressures on its price level. The question that arises is whether there is a mechanism that leads to automatic equilibration.

The answer is positive. There are two mechanisms that will automatically bring back equilibrium in the two countries. One is based on wage flexibility, the other on the mobility of labour.

³ See Krugman and Wells (2005); Mankiw (2006); or Blanchard (2008).

⁴ This is the substitution effect of a price increase. In the standard aggregate demand analysis, there is also a monetary effect: when the domestic price level increases, the stock of real cash balances declines, leading to an upward movement in the domestic real interest rate. This in turn reduces aggregate demand (see De Grauwe (1983)). Here we disregard the monetary effect and concentrate on the substitution effect.

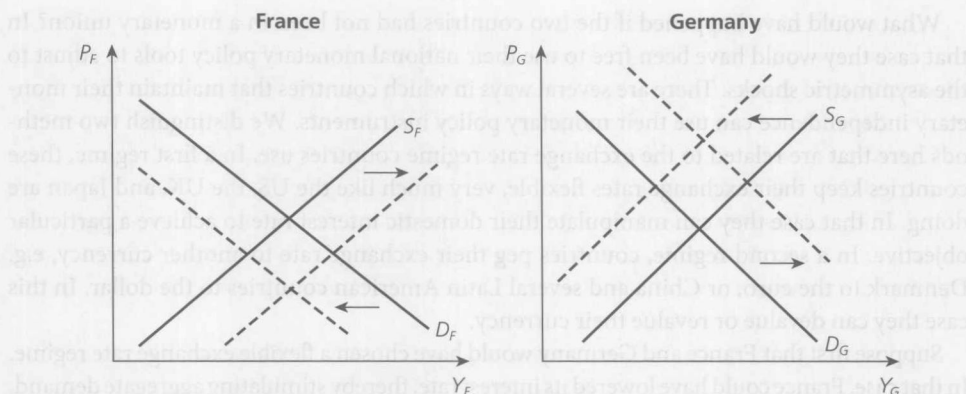


Figure 1.2 The automatic adjustment process.

1. *Wage flexibility.* If wages in France and Germany are flexible the following will happen. French workers who are unemployed will reduce their wage claims. In Germany, the excess demand for labour will push up the wage rate. The effect of this adjustment mechanism is shown in Fig. 1.2. The reduction of the wage rate in France shifts the aggregate supply curve downwards, whereas the wage increases in Germany shift the aggregate supply curve upwards. These shifts lead to a new equilibrium. In France, the price of output declines, making French products more competitive, and stimulating demand. The opposite occurs in Germany.

Note also that the second-order effects on aggregate demand will reinforce the equilibrating mechanism. The wage and price increases in Germany make French products more competitive. This leads to an upward shift in the French aggregate demand curve. Similarly, the decline in French costs and prices makes German products less competitive and shifts the German aggregate demand curve downwards.

2. *Mobility of labour.* A second mechanism that will lead to a new equilibrium involves mobility of labour. The French unemployed workers move to Germany where there is excess demand for labour. This movement of labour eliminates the need to let wages decline in France and increase in Germany. Thus, the French unemployment problem disappears, whereas the inflationary wage pressures in Germany vanish.

Thus, in principle the adjustment problem for France and Germany will disappear automatically if wages are flexible, and/or if the mobility of labour between the two countries is sufficiently high. If these conditions are not satisfied, however, the adjustment problem will not vanish. Suppose, for example, that wages in France do not decline despite the unemployment situation, and that French workers do not move to Germany. In that case France is stuck in the disequilibrium situation as depicted in Fig. 1.1. In Germany, the excess demand for labour puts upward pressure on the wage rate, producing an upward shift of the supply curve. The adjustment to the disequilibrium must now come exclusively through price increases in Germany. These German price increases make French goods more competitive again, leading to an upward shift in the aggregate demand curve in France. Thus, if wages do not decline in France the adjustment to the disequilibrium will take the form of inflation in Germany.

What would have happened if the two countries had not been in a monetary union? In that case they would have been free to use their national monetary policy tools to adjust to the asymmetric shocks. There are several ways in which countries that maintain their monetary independence can use their monetary policy instruments. We distinguish two methods here that are related to the exchange rate regime countries use. In a first regime, these countries keep their exchange rates flexible, very much like the US, the UK, and Japan are doing. In that case they can manipulate their domestic interest rate to achieve a particular objective. In a second regime, countries peg their exchange rate to another currency, e.g. Denmark to the euro, or China and several Latin American countries to the dollar. In this case they can devalue or revalue their currency.

Suppose first that France and Germany would have chosen a flexible exchange rate regime. In that case, France could have lowered its interest rate, thereby stimulating aggregate demand, while Germany could have raised its interest rate, thereby reducing aggregate demand. These monetary policies conducted by France and Germany would likely have led to a depreciation of the French franc and an appreciation of the German mark, thereby making the French products sold in Germany cheaper. Both the interest rate and exchange rate changes would have tended to boost aggregate demand in France and to lower aggregate demand in Germany.

If France and Germany had chosen to peg their exchange rate, France would have been able to devalue the franc against the mark, thereby achieving similar effects on aggregate demand. The devaluation of the franc would have increased the competitiveness of the French products, thereby stimulating the demand coming from Germany.

The effects of these national monetary policies are shown in Fig. 1.3. The expansionary monetary policy in France (or in the second regime, the devaluation of the French franc) shifts the French aggregate demand curve upwards. In Germany, the opposite occurs. The restrictive monetary policy in Germany (the appreciation of the mark) reduces aggregate demand in Germany, so that the demand curve shifts back to the left.

The effects of these demand shifts are that France solves its unemployment problem, and that Germany avoids having to accept inflationary pressures. This remarkable feat is achieved using just one instrument. (The reader may sense that this is too good to be true.

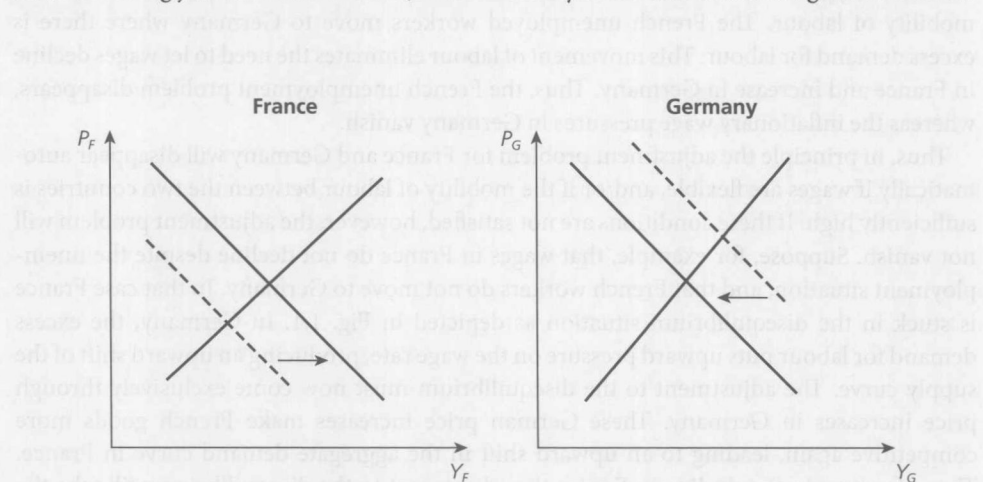


Figure 1.3 Effects of monetary expansion in France and monetary restriction in Germany.

And indeed it is. However, for the moment we just present Mundell's theory. We come back later with criticism.)

In contrast, when France is part of a monetary union with Germany it relinquishes control over its monetary policy. If it is saddled with a sustained unemployment problem, that can only disappear by deflation in France. In this sense we can say that a monetary union has a cost for France when it is faced with a negative demand shock. Similarly, Germany will find it costly to be in a monetary union with France, because it will have to accept more inflation than it would like.

Let us recapitulate the main points developed in this section. If wages are rigid and if labour mobility is limited, countries that form a monetary union will find it harder to adjust to asymmetric demand shifts than countries that have maintained their own national money and that can devalue (revalue) their currency. In the latter case, national monetary policies, including the exchange rate, add some flexibility to a system that is overly rigid. Put differently, a monetary union between two or more countries is optimal if one of the following conditions is satisfied: (a) there is sufficient wage flexibility; (b) there is sufficient mobility of labour.

1.2 Monetary independence and government budgets

When countries join a monetary union they lose their monetary independence. As argued in the previous section, that affects their capacity to deal with asymmetric shocks. The loss of monetary independence has another major implication: it fundamentally changes the capacity of governments to finance their budget deficits. Let us develop this point further.

Members of a monetary union issue debt in a currency over which they have no control. For example, when France, Germany, and Spain entered the Eurozone they ceased to issue their debt in their national currencies (the French franc, the German mark, and the Spanish peseta) over which they had full control. Instead, they now issue their debt in euros, a currency that none of these governments controls. This has a profound implication. As will be shown in the next paragraphs, it implies that financial markets acquire the power to force default on these countries. This is not the case in countries that are not part of a monetary union, and that have kept control over the currency in which they issue debt. These countries cannot easily be forced into default by financial markets.

In order to show why this is so, we analyse in detail what happens when investors start having doubts about the solvency of these two types of country. We will use the UK as a prototype monetary 'stand-alone' country and Spain as a prototype member-country of a monetary union.⁵

The UK scenario

Let's first trace what would happen if investors were to fear that the UK government might be defaulting on its debt. In that case, they would sell their UK government bonds, driving up the interest rate. After selling these bonds, these investors would have pounds that most

⁵ See Kopf (2011) for an insightful analysis and Winkler (2011) for an interesting comparison with the 19th century US banking system.

probably they would want to get rid of by selling them in the foreign exchange market. The price of the pound would drop until somebody else was willing to buy these pounds. The effect of this mechanism is that the pounds would remain bottled up in the UK money market to be invested in UK assets. Put differently, the UK money stock would remain unchanged. Part of that stock of money would probably be re-invested in UK government securities. But even if that were not the case so that the UK government cannot find the funds to roll over its debt at reasonable interest rates, it would certainly force the Bank of England to provide it with the cash to pay out bondholders. Thus the UK government is ensured that the liquidity is around to fund its debt. This means that investors cannot precipitate a liquidity crisis in the UK that could force the UK government into default. There is a superior force of last resort, the Bank of England.

The Spanish scenario

Things are dramatically different for a member of a monetary union, like Spain. Suppose that investors fear a default by the Spanish government. As a result, they sell Spanish government bonds, raising the interest rate. So far, we have the same effects as in the case of the UK. The rest is very different. The investors who have acquired euros are likely to decide to invest these euros elsewhere, say in German government bonds. As a result, the euros leave the Spanish banking system. There is no foreign exchange market and flexible exchange rate to stop this. Thus, the total amount of liquidity (money supply) in Spain shrinks. The Spanish government experiences a liquidity crisis, i.e. it cannot obtain funds to roll over its debt at reasonable interest rates. In addition, the Spanish government cannot force the Bank of Spain to provide the cash. The common central bank (the ECB in the Eurozone) can provide all the liquidity of the world, but the Spanish government does not control that institution. The liquidity crisis, if strong enough, can force the Spanish government into default because it cannot find the cash to pay out the bondholders. Financial markets know this and will test the Spanish government when budget deficits deteriorate. Thus, in a monetary union, financial markets acquire tremendous power and can force any member country onto its knees.

The situation of Spain is reminiscent of the situation of emerging economies that have to borrow in a foreign currency. These emerging economies face the same problem, i.e. they can be confronted with a 'sudden stop' when capital inflows suddenly stop, leading to a liquidity crisis (see Calvo (1988) and Eichengreen et al. (2005)).

The previous analysis stresses the fragility of a monetary union. When investors distrust a particular member government they will sell the bonds, thereby raising the interest rate and triggering a *liquidity* crisis. This may in turn set in motion a *solvency* problem, i.e. with a higher interest rate the government debt burden increases, forcing the government to reduce spending and increase taxation. Such a forced budgetary austerity is politically costly, and in turn may lead the government to stop servicing the debt, and to declare a default. Thus, by entering a monetary union, member countries become vulnerable to movements of distrust by investors. Note that there is a self-fulfilling prophecy in these dynamics. When financial markets start distrusting a particular government's ability (or willingness) to service its debt, investors sell the government bonds making it more likely that the government will stop servicing the debt. We come back to this feature of government debt crises in a later chapter.

Note also that these dynamics are absent in countries that have kept their monetary independence. The reason is that these 'stand-alone' countries issue their debt in their own currencies. These countries, therefore, can always create the liquidity to pay out the bondholders. This does not mean, of course, that these countries may not have problems of their own. One could be that the too-easy capacity to finance debt by money creation leads to inflation. But it remains true that these countries cannot be forced against their will into default by financial markets. The fact that this is possible in a monetary union makes such a union fragile and costly.

There is an important interaction between the fragility of a monetary union and asymmetric shocks. We discuss this interaction in the next section.

1.3 Asymmetric shocks and debt dynamics

Let us return to the two-country model presented in Section 1.1. We discussed the adjustment problem France and Germany face in a monetary union when they are hit by an asymmetric demand shock. How is this adjustment affected when we take into account the budgetary implications? Let us first concentrate on France. As a result of the negative demand shock, output and employment decline in France. The effects on the French government budget are the following. First, the decline of French GDP leads to a decline of government tax receipts. This decline is probably more than proportional to the decline in GDP because income taxes are progressive. Second, because unemployment increases, the French government expenditures increase. When adding up these two effects we conclude that the French government budget deficit increases. This increase follows automatically from the decline in GDP. It is inherent in the government budget.

If the decline in aggregate demand is strong enough, the ensuing automatic increase in the French government budget deficit can become so large that investors start having doubts about the solvency of the French government. Let us go through the scenario that we developed for Spain in the previous section and apply it to France. Distrust in the French government will lead investors to sell French government bonds, leading to an increase in the interest rate and a liquidity crisis. The macroeconomic implications of this crisis are that the aggregate demand curve in France shifts further to the left, i.e. with a higher interest rate in France, French residents will spend less on consumption and investment goods. We show this effect in Fig. 1.4. The asymmetric demand shock shifts the demand curve from D_F to D'_F . This was the effect analysed in Fig. 1.1. The debt crisis now adds to the negative demand shock by further shifting the demand curve to D''_F . Thus, the debt crisis amplifies the initial negative demand shock.

What is the effect of the French government debt crisis on Germany? In order to analyse this we go back to the moment that investors sell French government bonds. After these sales, investors acquire cash (call them euros) that they will want to invest. Presumably since they were holding (French) government bonds they will want to acquire other government bonds that they trust. In the present circumstances, these are likely to be German government bonds. So, let us assume that these investors buy German government bonds. The effect of these purchases is that the price of German government bonds increases. This in turn reduces the yield on these bonds. The effect of this liquidity flow (out of French bonds