

The Euro

There is no future for the people of Europe other than in union.

Jean Monnet, a “founding father” of the European Union

This Treaty marks a new stage in the process of creating an ever closer union among the peoples of Europe, in which decisions are taken as closely as possible to the citizen.

Maastricht Treaty (Treaty on European Union), 1992, Title 1, Article A

Political unity can pave the way for monetary unity. Monetary unity imposed under unfavorable conditions will prove a barrier to the achievement of political unity.

Milton Friedman, Nobel laureate, 1997

In 1961 the economist Robert Mundell wrote a paper discussing the idea of a *currency area*, also known as a **currency union** or *monetary union*, in which states or nations replace their national monies with a single currency, a common money.

At the time, almost every country was a separate currency area, so Mundell had doubts as to whether his research would have any practical relevance: “What is the appropriate domain of a currency area? It might seem at first that the question is purely academic since it hardly appears within the realm of political feasibility that national currencies would ever be abandoned in favor of any other arrangement.”¹

Almost forty years later, in 1999, 11 nations in Europe elected to form such a currency area, now known as the *Euro area*, or **Eurozone**. Later that year, Mundell found himself the recipient of a Nobel Prize.

¹ Robert Mundell, 1961, “A Theory of Optimum Currency Areas,” *American Economic Review*, 51, September, 657–665.

- 1 The Economics of the Euro
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The Eurozone has since expanded and continues to expand. By 2008 there will be 15 member countries. They will all be using the new notes and coins bearing the name **euro** and the symbol €, which have taken the place of old national currencies (the francs, marks, liras, and others).

The euro remains one of the boldest experiments in the history of the international monetary system, a new currency that is used by more than 300 million people in one of the world's most prosperous economic regions. The euro is having enormous economic impacts that will be felt for many years to come and is an essential object of study for those interested in today's global macroeconomy.

The goal of this chapter is to understand as fully as possible the logic of the euro project. We first examine the euro's economic logic, by exploring and applying theories, developed by Mundell and others, that seek to explain when it makes economic sense for different economic units (nations, regions, states) to adopt a common currency and when it makes economic sense for them to have distinct monies. To spoil the surprise: based on the current evidence, most economists judge that the Eurozone may not make sense from a purely economic standpoint, at least for now.

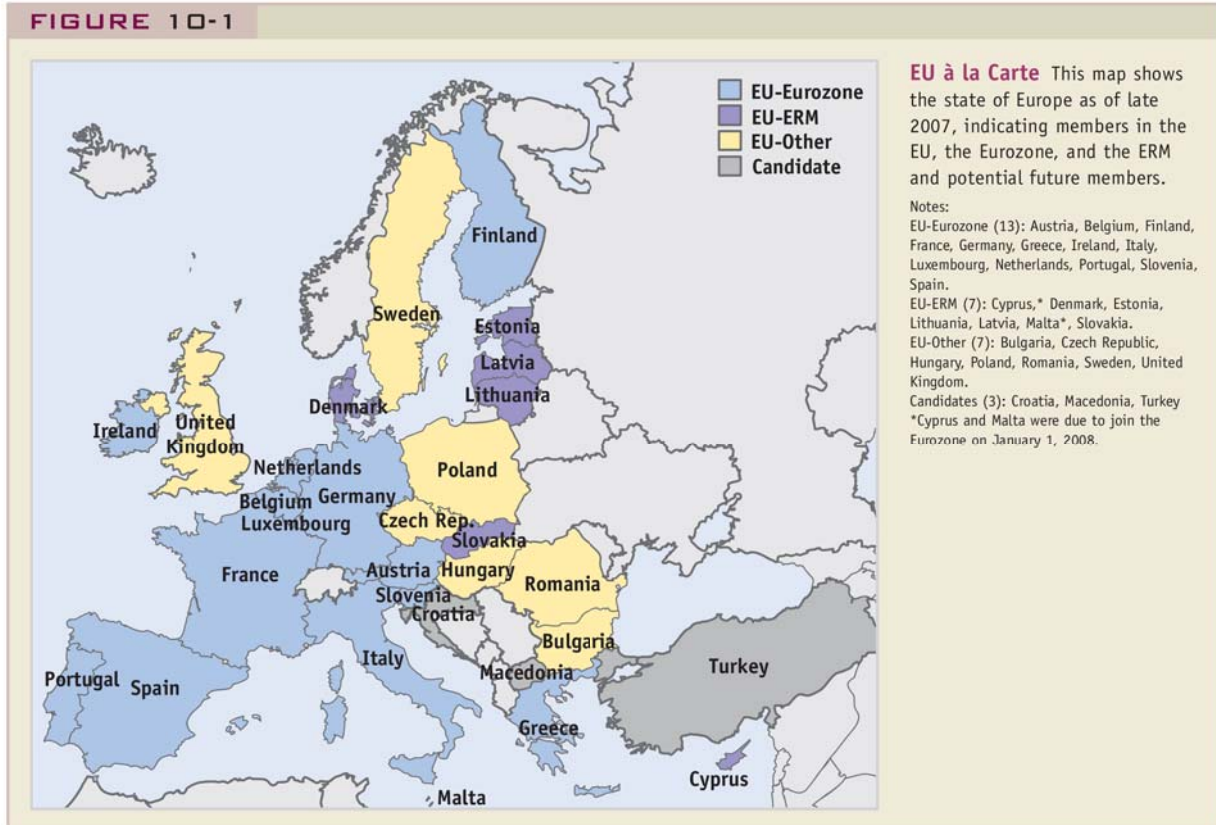
We then turn to the historical and political logic of the euro and discuss its distant origins and recent evolution within the larger political project of the European Union. Looking at the euro from these perspectives, we can see how the euro project unfolded as part of a larger enterprise. In this context, the success of the euro depends on assumptions that the EU functions smoothly as a political union and adequately as an economic union—assumptions that are constantly under question.

The Ins and Outs of the Eurozone Before we begin our discussion of the euro, we need to familiarize ourselves with the EU and the Eurozone. At the start, policy makers imagined that the euro would end up as the currency of the **European Union (EU)**. The EU is a mainly economic, but increasingly political, union of countries that is in the process of extending across—and some might argue beyond—the geographical boundaries of Europe. The main impetus for the euro project came in 1992 with the signing of the Treaty on European Union, at Maastricht, in the Netherlands. Under the **Maastricht Treaty**, the EU initiated a grand project of *Economic and Monetary Union (EMU)*. A major goal of the EMU was the establishment of a currency union in the EU whose monetary affairs would be managed cooperatively by members through a new European Central Bank (ECB).²

The map in Figure 10-1 shows the state of play at the time of this writing in 2007. The map depicts some of the EU's main political and mone-

² Some small non-EU, non-Eurozone states also use the euro: Monaco, San Marino, Vatican City, and Andorra have legal agreements allowing them to use the euro as their de jure legal tender (they had previously used the national currencies of their neighbors). All of these countries except Andorra can mint their own euro coins. Some other peoples use the euro as their de facto currency, notably the Montenegrins and Kosovars, who are keen to assert their autonomy from Serbia and its currency, the Serbian dinar (they had previously used the German mark as their currency).

FIGURE 10-1



tary alignments. The two are not the same: different countries choose to participate in different aspects of economic and monetary integration, a curious feature of the EU project known as *variable geometry*.

- As of 2007, the EU comprised 25 countries (EU-25). Ten of these had joined as recently as 2004, and Romania and Bulgaria had joined in 2007. Three more candidate countries were formally seeking to join—Croatia, Macedonia, and Turkey.³
- A country can be in the EU but not in the Eurozone. It is important to remember who's "in" and who's "out." In 1999 three EU members opted to stay out of the Eurozone and keep their national currencies: these "out" countries were Denmark, Sweden, and the United Kingdom. In addition, all new EU entrants, like the 12 countries that joined the EU since 2004, started in the "out" group. On January 1, 2007, the first of these, Slovenia, became a member of the Eurozone.

³ Until a naming dispute with Greece is resolved, Macedonia is often referred to in official communications as "the Former Yugoslav Republic of Macedonia" or, if you prefer acronyms, FYROM.

NETWORK

Do some research on the Internet to construct an updated version of the map in Figure 10-1. You can find membership information on the websites of the European Union (europa.eu.int) and the European Central Bank (www.ecb.int). Since this book was written, have any new countries joined the EU, or applied to join? Have any countries entered the ERM, or exited from it? Have any new countries adopted the euro?



Euro notes and coins.

- As we shall see, most of the “outs” want to be “in.” The official accession procedure requires that those who wish get “in” must first peg their exchange rates to the euro in a system known as the *Exchange Rate Mechanism* (ERM) for at least two years and satisfy certain qualification criteria. Seven countries were part of the ERM as of 2007, and for all but Denmark, this was taken as an indication of their intent to adopt the euro shortly. Of these seven, Cyprus and Malta were expected to be the next countries to join the Eurozone on January 1, 2008. We discuss the ERM, the qualification criteria, and other peculiar rules later in this chapter.

1 The Economics of the Euro

John Stuart Mill, a nineteenth-century economist, thought it a “barbarism” that all countries insisted on “having, to their inconvenience and that of their neighbors, a peculiar currency of their own.” Barbaric or not, it has long appeared to be an immutable law that national currencies are the norm. Currency unions are quite rare.⁴ Economists presume that such outcomes reflect a deeper logic. A common currency may be more convenient—put another way, it has benefits. But it also has some costs. And the costs must outweigh the benefits for the “barbarism” of national currencies to persist.

The Theory of Optimum Currency Areas

How does a country decide whether to join a currency union? To answer this question, let’s see if one country, Home, should join a currency union with another country, Foreign. (Our analysis can be generalized to a case in which Foreign consists of multiple members of a larger currency union.)

If countries make a decision that best serves their self-interest—that is, an optimizing decision—when they form a currency union, then economists use the term **optimum currency area (OCA)** to refer to the resulting monetary union. How can such a decision be made?

To decide whether joining the currency union serves its economic interests, Home must evaluate whether the benefits outweigh the costs. This decision is similar to the decision as to whether to select a fixed or floating exchange rate, which we discussed in Chapter 8, so two familiar ideas from that previous discussion can be applied and extended in what follows.

Market Integration and Efficiency Benefits Adopting a common currency implies that the two regions will henceforth have a fixed exchange rate—in particular, it will be fixed at 1. Hence, the same market integration criterion

⁴ Many currency unions are unilateral—cases of “dollarization” (defined in Chapter 2) involving the adoption of a foreign currency by a country that plays no role in managing the common currency (e.g., Panama’s use of the U.S. dollar). In only a few cases are currency unions multilateral—cases in which all countries have shared participation in the monetary affairs of the union, the Eurozone being the most notable example.

we used to discriminate between fixed and floating regimes can be applied to the case of an OCA:

If there is a greater degree of economic integration between the home region (A) and the other parts of the common currency zone (B), then there will be a larger volume of transactions between the two, and the larger will be the economic benefits of adopting a common currency due to lowered transaction costs and reduced uncertainty.

Economic Symmetry and Stability Costs Adopting a common currency implies that the two regions will henceforth have the same monetary policy—each region will lose its monetary autonomy, and the monetary authorities who have control of the common currency will decide upon a common interest rate for all members. Hence, the same similarity criterion we used to discriminate between fixed and floating regimes can be applied to the case of an OCA:

If a home country and its potential currency union partners are more economically similar or “symmetric” (they face more symmetric shocks and fewer asymmetric shocks), then it is less costly for the home country to join the currency union.

Simple Optimum Currency Area Criteria

We are now in a position to set out a theory of an optimum currency area by considering the *net benefits* of adopting a common currency. The net benefits equal the benefits minus the costs. The two main lessons we have just encountered suggest the following:

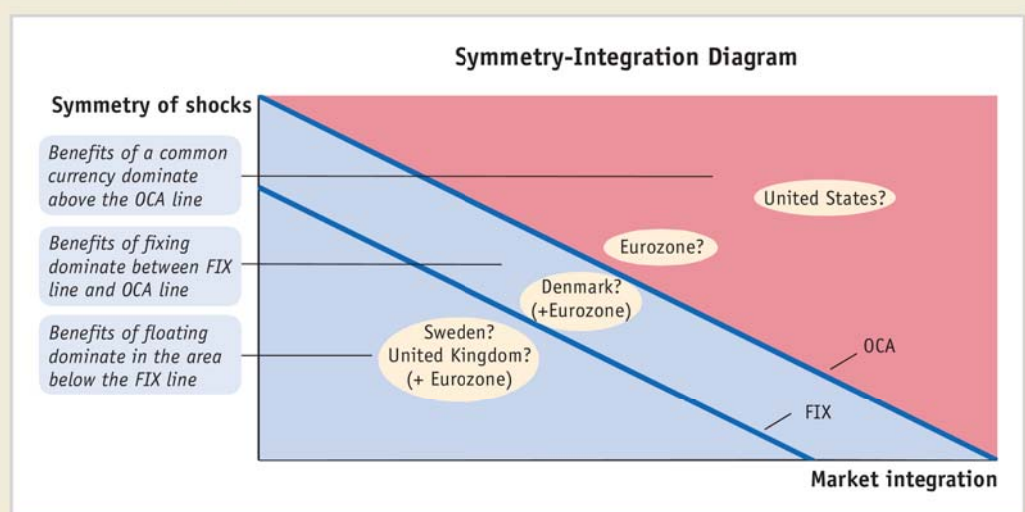
- *As market integration rises, the efficiency benefits of a common currency increase.*
- *As symmetry rises, the stability costs of a common currency decrease.*

Summing up, the OCA theory says that if either market integration or symmetry increases, the net benefits of a common currency will rise. If the net benefits are negative, the home country would stay out based on its economic interests. If the net benefits turn positive, the home country would join based on its economic interests.

Figure 10-2 illustrates the OCA theory graphically, using the same symmetry-integration diagrams used in Chapter 8. On the horizontal axis is a measure of market integration for the Home-Foreign pair. On the vertical axis is a measure of the symmetry of the shocks experienced by the Home-Foreign pair. If the Home-Foreign pair moves up and to the right in the diagram, then the benefits increase, the costs fall, and so the net benefit of a currency union rises. At some point, the pair crosses a threshold, the OCA line, and enters a region in which it will be optimal for them to form a currency union based on their economic interests.

The figure looks familiar. The derivation of the OCA line here is identical to the derivation of the FIX line in Chapter 8, which raises an important question.

FIGURE 10-2



Stylized OCA Criteria Two regions are considering a currency union. If markets become more integrated (a move right on the horizontal axis), the net economic benefits of a currency union increase. If the economic shocks they experience become more symmetric (a move up the vertical axis), the net economic benefits of a currency union also increase. If the parts of the region move far enough up or to the right, benefits exceed costs, net benefits are positive, and they cross the OCA threshold. In the shaded region above the line, it is optimal for the parts of the region to form a currency union. In practice, the OCA line is likely to be above and to the right of the FIX line.

What's the Difference between a Fix and a Currency Union?

If choosing to fix and choosing to form a currency union were identical decisions, then the FIX and OCA lines would be one and the same. In reality, we think they are likely to differ—and that the OCA line is likely to be above the FIX line, as drawn in Figure 10-2. Thus, when countries consider forming a currency union, the economic tests (based on symmetry and integration) will set a higher bar than they would set for judging whether it is merely optimal to fix.

Why might this be so? To give a concrete example, let's consider the case of Denmark, which we studied in Chapter 4 as an example of the trilemma in Europe. The Danes are in the ERM, so the krone is pegged to the euro. But Denmark has spent a long time in the ERM and shows no signs of taking the next step into the Eurozone. This preference has been democratically expressed—proposals to join the Eurozone have been defeated by referendum. The Danish position looks slightly odd at first glance. Denmark appears to have ceded monetary autonomy to the ECB because its interest rate tracks the euro interest rate closely. Yet the Danes do not gain the full benefits of a currency union because transactions between Denmark and the Eurozone still require a change of currency.

Still, one can make a logical case for Denmark to keep its own currency. By doing so, it better preserves the *option* to exercise monetary autonomy at some future date, even if the option is not being used currently. For one thing,

even under the ERM, although the krone is pegged very tightly to the euro within $\pm 2\%$ by choice, the Danes could employ the full $\pm 15\%$ band allowed by ERM and give themselves much more exchange rate flexibility. (A $\pm 15\%$ band isn't a very hard peg—recall that the standard de facto threshold for a peg is no more than $\pm 2\%$ variation in one year.) And because they have only gone so far as pegging to—and not joining—the euro, the Danes are always free to leave the ERM at some future date (as Sweden and the United Kingdom have done) if they want the even greater flexibility of a more freely floating exchange rate.

Now, contrast the position of Denmark with that of Italy, the country in which rumors of departure from the Eurozone have been strongest. Compared with a Danish exit from the ERM, an Italian exit from the euro would be messy, complicated, and costly. The actual process of retiring euros and reprinting and reintroducing new lira as money would be difficult enough. But more seriously, all Italian contracts were switched from the lira to the euro, in particular the private and public debt contracts. So there would be a monumental legal battle over the implicit defaults that would follow from the “lirification” of such euro contracts. Some countries have tried these kinds of strategies, but the examples are not too encouraging. In the 1980s, Liberia de-dollarized (and descended into economic crisis) and in 2002 Argentina legislated the “pesification” of its dollar contracts (and descended into economic crisis).

Because the future cannot be known with certainty, countries may value the option to change their monetary and exchange rate regime in the future. Exit from a peg is easy—some might say too easy—and happens all the time. Exit from a common currency is much more tricky (the Eurozone has *no* exit procedure) and is expected to be costly. We conclude that because a country's options are more limited after joining a common currency than after joining a peg, the country will set tougher conditions for the former; thus, the optimal OCA region will be smaller than the optimal fixing region, as shown in Figure 10-2.

Other Optimum Currency Area Criteria

Our simple model in Figure 10-2 illustrated two basic motives for joining a currency union, but there could be many other forces at work. These other considerations can still be examined using the same framework, which allows us to consider several additional arguments for joining a currency union.

Labor Market Integration In the analysis so far (as in Chapter 8), the home and foreign countries trade goods and services, but labor is immobile between the two countries. But what if we suppose instead that Home and Foreign have an integrated labor market, so that labor is free to move between them? This allows for an alternative adjustment mechanism in the event of asymmetric shocks.

For example, suppose there is a negative shock in Home. If output falls and unemployment rises in Home, then labor will start to migrate to Foreign, where unemployment is lower. The more fluid this migration response, the

less painful the impact of the negative shock on Home, and the less need there will be for an independent monetary policy response in Home for stabilization purposes. With an excess supply of labor in one region and excess demand in the other region, adjustment will occur through migration.

This reasoning suggests that the cost to Home of forming a currency union with Foreign, due to the loss of monetary policy autonomy, will be lower when the degree of labor market integration between Home and Foreign is higher, because labor mobility provides an alternative adjustment mechanism. All else equal, the possibility of gains of this sort would lower the OCA threshold, as reflected in the shift down of the OCA line from OCA_1 to OCA_2 in Figure 10-3. This shift expands the shaded zone where currency union is preferred: countries are more likely to want to form a currency union the greater the labor market integration between them.

Fiscal Transfers We have now examined two possible mechanisms through which countries in an OCA can cope with asymmetric shocks: monetary policy and labor markets. We have ignored fiscal policy. All else equal, one might argue that a country's fiscal policy is autonomous and largely independent of whether a country is inside or outside a currency union. But there is one important exception: fiscal policy will not be independent when a currency union is built on top of a federal political structure with fiscal mechanisms that permit interstate transfers—a system known as *fiscal federalism*.

FIGURE 10-3



Changes in Other OCA Criteria Several other criteria can make a currency union more attractive, even for given levels of market integration. Factors that lower costs or raise benefits will shift the OCA line down and to the left, expanding the OCA zone.

If a region has fiscal federalism, then a third adjustment channel is available: when Home suffers a negative shock, the effects of the shock can be cushioned by fiscal transfers from Foreign, allowing more expansionary fiscal policy in Home than might otherwise be the case. For this argument to be compelling, however, the fiscal transfers must be large enough to make a difference. They must also help overcome some limit on the exercise of fiscal policy, so as to finance policies that could not be financed in some other way (for example, by government borrowing).

If these conditions are satisfied, then the presence of fiscal transfers will lower the costs of joining a currency union. We could represent the possibility of gains of this sort in Figure 10-3, where, all else equal, enhanced fiscal transfers would mean a lower OCA threshold, so the OCA line shifts down from OCA_1 to OCA_2 . This shift expands the shaded zone where currency union is preferred: the better the fiscal transfer mechanisms, the more countries are likely to want to join the currency union.

Monetary Policy and Nominal Anchoring One important aspect of Home joining a currency union is that Home's central bank ceases to manage monetary policy (or ceases to exist altogether). Monetary policy is then carried out by a common central bank, whose policies and actions may be subject to different designs, objectives, and political oversight. This may or may not be a good thing, depending on whether the overall monetary policy performance of Home's central bank is (or is expected to be) as good as that of the common central bank.

For example, suppose that Home suffers from chronic high inflation that results from an **inflation bias** of Home policy makers—the inability to resist the political pressure to use expansionary monetary policy for short-term gains. In the long run, on average, inflation bias leads to a higher level of expected inflation and actual inflation. But average levels of unemployment and output are unchanged because higher inflation is expected and inflation has no real effects in the long run.

Suppose that the common central bank of the currency union would be a more politically independent central bank that can resist political pressures to use expansionary monetary policy for short-term gains. It performs better by delivering low inflation on average, and no worse levels of unemployment or output. In this case, joining the currency union improves economic performance for Home by giving it a better nominal anchor: in this scenario, loss of monetary autonomy can be a good thing.

There is a possibility that this criterion was important for several Eurozone member states that historically have been subject to high inflation—for example, Italy, Greece, and Portugal. We can represent the possibility of monetary policy gains of this sort in Figure 10-3, where, all else equal, a worsening in the home nominal anchor (or an improvement in the currency union's nominal anchor) shifts the OCA line down. For countries with a record of high and variable inflation, the OCA threshold will fall, so again the OCA line moves down from OCA_1 to OCA_2 . This shift also expands the shaded zone where currency union is preferred: given levels of market integration and symmetry, high-inflation countries are more likely

to want to join the currency union the larger are the monetary policy gains of this sort. (Later on we will consider the concerns of the low-inflation countries in this scenario.)

Political Objectives Finally, we turn to noneconomic gains and the possibility that countries will join a currency union even if it makes no pure economic sense for them to do so. For instance, one can imagine that Home's "political welfare" may go up, even if pure economic welfare goes down. How?

Suppose a state or group of states is in a situation in which forming a currency union has value for political, security, strategic, or other reasons. For example, when the United States expanded westward in the nineteenth century, it was accepted, without question, that new territories and states would adopt the U.S. dollar. In recent times, eastward expansion of the EU comes with an assumption that, in the end, accession to the union will culminate in monetary union. These beliefs, assumptions, and accords did not rest very much, if at all, on any of the OCA criteria we have discussed so far. Instead, they were an act of political faith, of a belief in the states' common political future, a statement about destiny.

Political benefits can also be represented in Figure 10-3 by the OCA line shifting down from OCA_1 to OCA_2 . In this scenario, for countries between OCA_1 and OCA_2 , there are *economic costs* to forming a currency union, but these are outweighed by the *political benefits*. The political dimension of the European Union has played a significant role in EU and Eurozone history, a topic we discuss later in the chapter.

APPLICATION

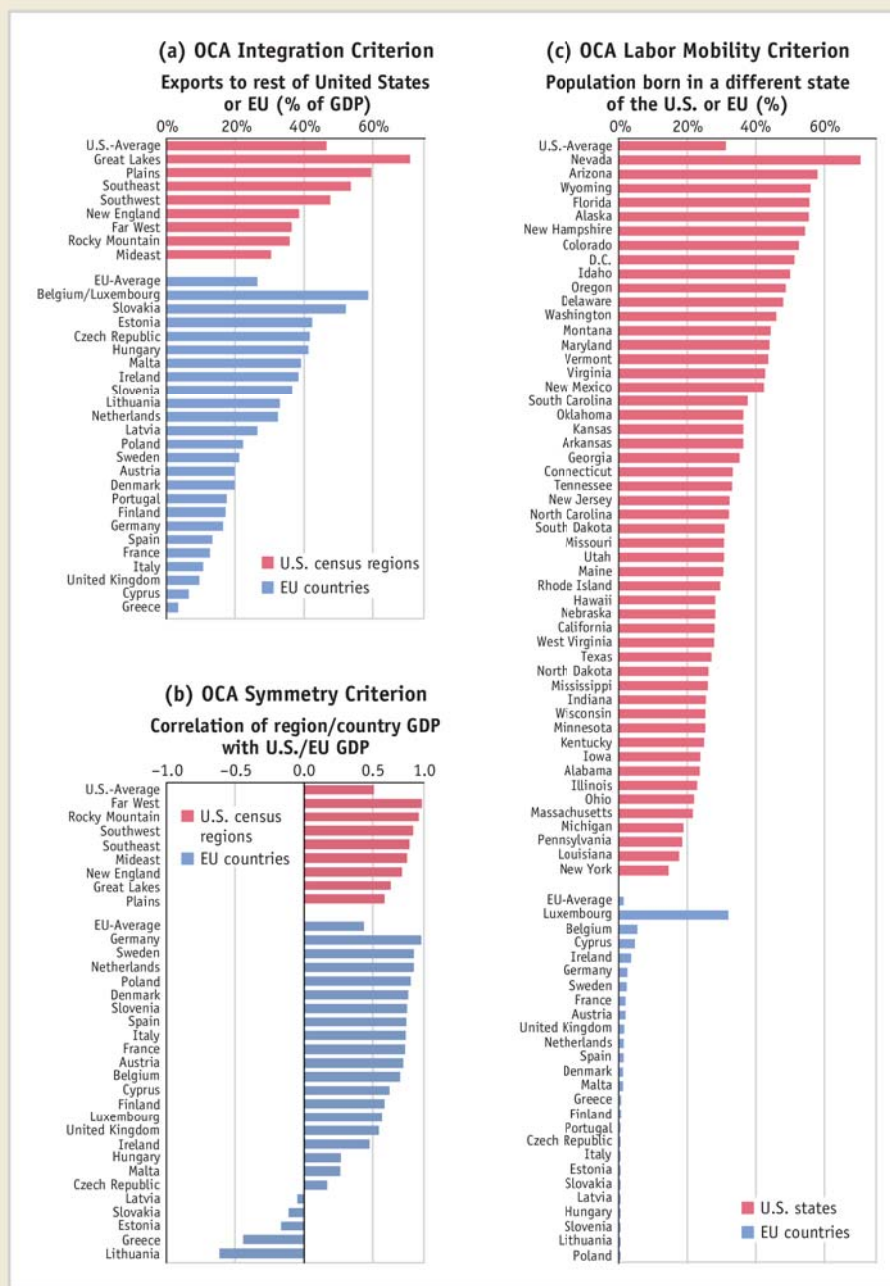
Optimum Currency Areas: Europe versus the United States

On first glance, the theory of optimum currency areas helpfully sets out the important criteria by which we can judge whether it is in a country's interest to join a currency union. But while the OCA criteria work well in theory, in reality the costs and benefits of a currency union cannot be measured with any great accuracy.

Recognizing this, we can try an alternative approach and use comparative analysis to shed some light on the issue by answering a slightly different question: How does Europe compare with the United States on each of the OCA criteria? Clearly, if one took the view that the United States works well as a common currency zone, and if we find that Europe performs as well as or better than the United States on the OCA criteria, then these findings would lend indirect support to the economic logic of the euro.

Goods Market Integration within the EU European countries trade a lot with each other. But as far as we can tell (the available data are not entirely comparable), the individual states within the United States trade even more with each other. For the large census regions of the United States shown in Figure 10-4, panel (a), manufacturing trade ranges from 30% to 70% of gross state product. The figure for EU countries is typically much

FIGURE 10-4



OCA Criteria for Europe and the United States Most economists think the United States is much more likely to satisfy the OCA criteria than the EU is. Why? Data in panel (a) show that interregional trade in the United States rises to levels much higher than those seen among EU countries. Data in panel (b) show that U.S. and EU shocks are comparably symmetric. Data in panel (c) show that U.S. labor markets are very integrated compared with the EU.

Sources: HM Treasury, 2003, The United States as a Monetary Union, London: HMSO; Paul de Grauwe, 2003, Economics of Monetary Union, 6th ed., Oxford, England: Oxford University Press; Eurostat; bea.gov.

