

International Economics

THEORY & POLICY

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Chapter 20

Optimum Currency Areas and the European Experience

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Preview

- The European Union
- The European Monetary System
- Policies of the EU and the EMS
- Theory of optimal currency areas
- Is the EU an optimal currency area?
- Other considerations of a economic and monetary union



TABLE 20-1 A Brief Glossary of Euronyms

ECB	European Central Bank
ESCB	European System of Central Banks
EMS	European Monetary System
EMU	Economic and Monetary Union
ERM	Exchange Rate Mechanism
SGP	Stability and Growth Pact



What Is the EU?

- The European Union is a system of international institutions, the first of which originated in 1957, which now represents 25 European countries through the:
 - ◆ European Parliament: elected by citizens of member countries
 - ◆ Council of the European Union: appointed by governments of the member countries
 - ◆ European Commission: executive body
 - ◆ Court of Justice: interprets EU law
 - ◆ **European Central Bank**, which conducts monetary policy, through a system of member country banks called the **European System of Central Banks**



What Is the EMS?

- The **European Monetary System** was originally a system of fixed exchange rates implemented in 1979 through an **exchange rate mechanism** (ERM).
- The EMS has since developed into an **economic and monetary union** (EMU), a more extensive system of coordinated economic and monetary policies.
 - ◆ The EMS has replaced the exchange rate mechanism for most members with a common currency under the economic and monetary union.



Membership of the Economic and Monetary Union

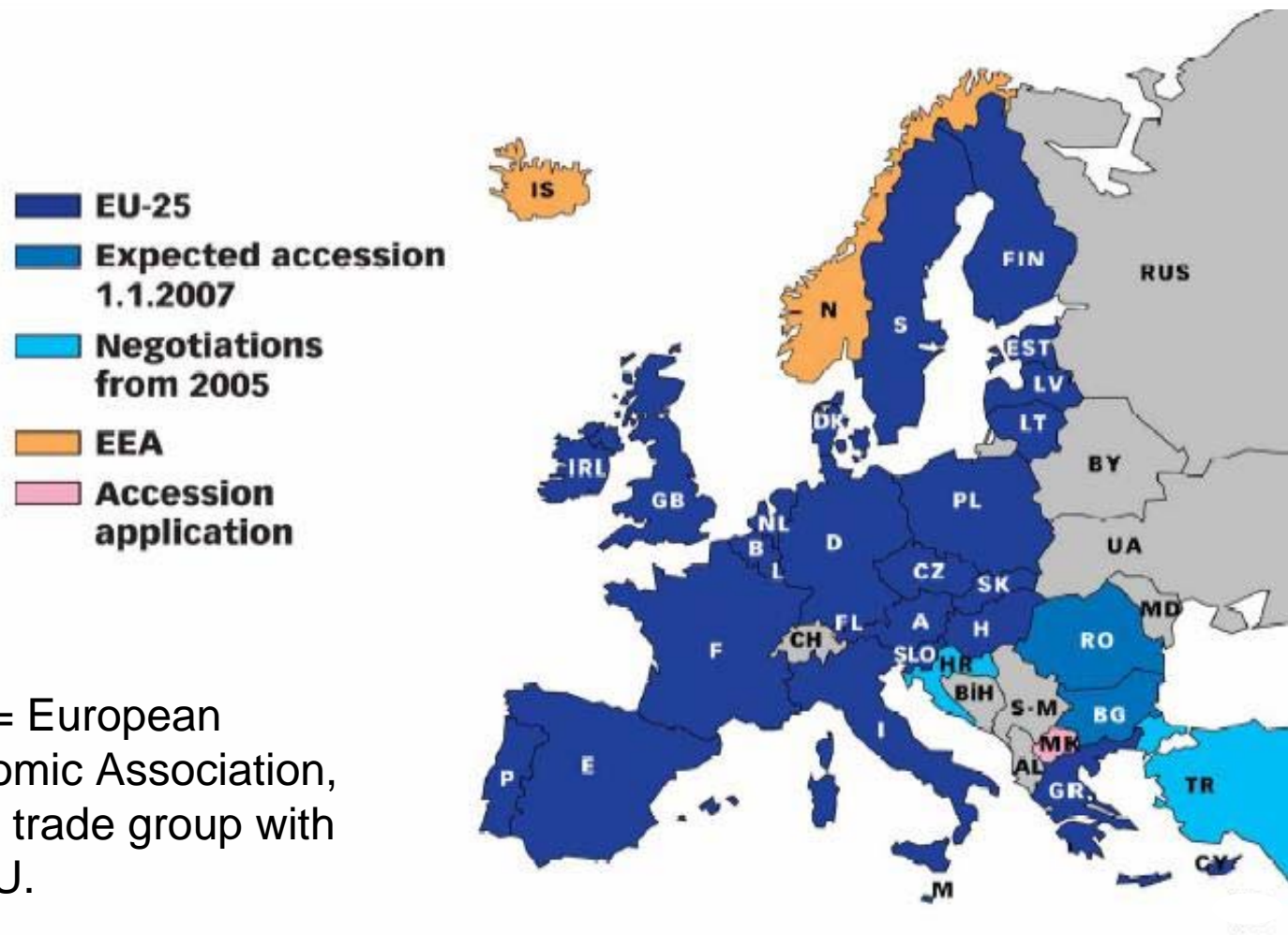
- To be part of the economic and monetary union, EMS members must
 1. first adhere to the ERM: exchange rates were fixed in specified bands around a target exchange rate,
 2. next follow restrained fiscal and monetary policies as determined by Council of the European Union and the European Central Bank,
 3. finally replace the national currency with the euro, whose circulation is determined by the European System of Central Banks.



Membership of the EU

- To be a member of the EU, a country must, among other things,
 1. have low barriers that limit trade and flows of financial capital
 2. adopt common rules for emigration and immigration to ease the movement of people.
 3. establish common workplace safety and consumer protection rules
 4. establish certain political and legal institutions that are consistent with the EU's definition of liberal democracy.

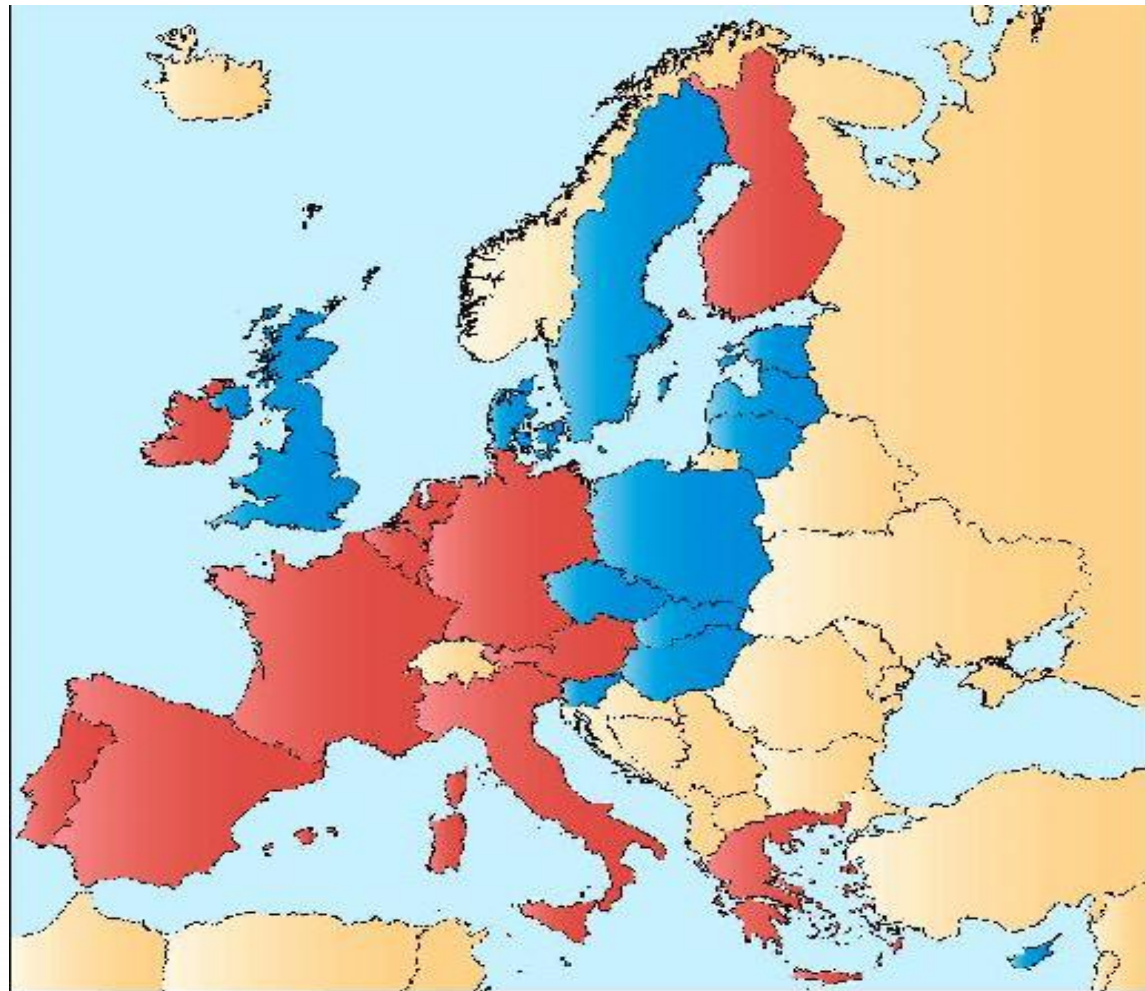
Members of the European Union



EEA = European Economic Association, a free trade group with the EU.

EU/EMS Members of the Economic and Monetary Union (EMU)

Countries in **red**:
EU members that
use the euro and
are members of
the EMU.
Countries in **blue**:
EU members that
do not use the
euro and are not
members of the
EMU.





Why the EU?

- Countries that established the EU and EMS had several goals
 1. To enhance Europe's **power in international affairs**: as a union of countries, the EU could represent more economic and political power in the world.
 2. To make Europe a **unified market**: a large market with free trade, free flows of financial capital and free migration of people—in addition to fixed exchange rates or a common currency—were believed to foster economic growth and economic well being.
 3. To make Europe **politically stable and peaceful**.



Why the Euro (EMU)?

EU members adopted the euro for principally 4 reasons:

1. **Unified market:** the belief that greater market integration and economic growth would occur.
2. **Political stability:** the belief that a common currency would make political interests more uniform.
3. The belief that **German influence** under the EMS **would be moderated** under a European System of Central Banks.
4. **Eliminate the possibility of devaluations/revaluations:** with free flows of financial capital, capital flight and speculation could occur in an EMS with separate currencies, but would be more difficult with a single currency.



The EMS from 1979–1998

- From 1979–1993, the EMS defined the exchange rate mechanism to allow most currencies to fluctuate $\pm 2.25\%$ around target exchange rates.
- The exchange rate mechanism allowed larger fluctuations ($\pm 6\%$) for currencies of Portugal, Spain, Britain (until 1992) and Italy (until 1990).
 - ◆ These countries wanted greater flexibility with monetary policy.
 - ◆ The wider bands were also intended to prevent speculation caused by differing monetary and fiscal policies.



The EMS from 1979–1998 (cont.)

To prevent speculation,

- early in the EMS some *exchange controls* were also enforced to limit trading of currencies.
 - ◆ But from 1987–1990 these controls were lifted in order to make the EU a common market for financial capital.
- a *credit system* was also developed among EMS members to lend to countries that needed assets and currencies that were in high demand in the foreign exchange markets.



The EMS from 1979–1998 (cont.)

- But because of differences in monetary and fiscal policies across the EMS, market participants began buying German assets (because of high German interest rates) and selling other EMS assets.
- As a result, Britain left the EMS in 1992 and allowed the pound to float against other European currencies.
- As a result, exchange rate mechanism was redefined in 1993 to allow for bands of +/-15% of the target value in order to devalue many currencies relative to the Deutschmark.



The EMS from 1979–1998 (cont.)

- But eventually, each EMS member adopted similarly restrained fiscal and monetary policies, and the inflation rates in the EMS eventually converged (and speculation slowed or stopped).
 - ◆ In effect, EMS members were following the restrained monetary policies of Germany, which has traditionally had low inflation.
 - ◆ Under the EMS exchange rate mechanism of fixed bands, Germany was “exporting” its monetary policy.

Convergence of Inflation Rates Among EMS Members, 1978–2000

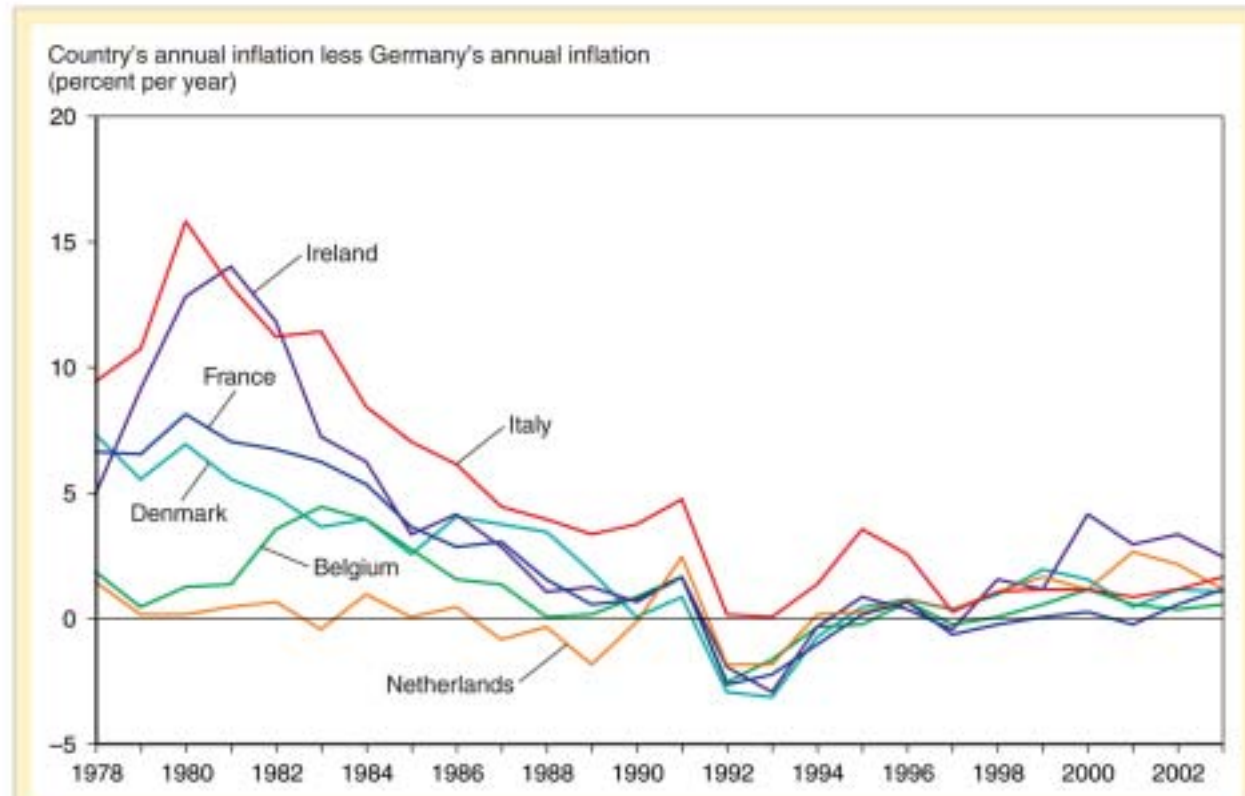


Figure 20-2

Inflation Convergence for Six Original EMS Members, 1978–2003

Shown are the differences between domestic inflation and German inflation for six of the original EMS members, Belgium, Denmark, France, Ireland, Italy, and the Netherlands.

Source: CPI inflation rates from International Monetary Fund, *International Financial Statistics*.



Policies of the EU and EMS

- *Single European Act of 1986* recommended that many barriers to trade, financial capital flows and immigration be removed by December 1992.
 - ◆ It also allowed EU policy to be approved with less than unanimous consent among members.
- *Maastricht Treaty*, proposed in 1991, required the 3 provisions to transform the EMS into a economic and monetary union.
 - ◆ It also required standardizing regulations and centralizing foreign and defense policies among EU countries.
 - ◆ Some EU/EMS members have not ratified all of the clauses.



Policies of the EU and EMS (cont.)

- The Maastricht Treaty requires that members which want to *enter* the economic and monetary union
 1. attain exchange rate stability defined by the ERM before adopting the euro.
 2. attain price stability: a maximum inflation rate of 1.5% above the average of the three lowest national inflation rates among EU members.
 3. maintain a restrictive fiscal policy:
 - ◆ a maximum ratio of government deficit to GDP of 3%.
 - ◆ a maximum ratio of government debt to GDP of 60%.



Policies of the EU and EMS (cont.)

- The Maastricht Treaty requires that members which want to *remain* in the economic and monetary union
 1. maintain a restrictive fiscal policy:
 - ◆ a maximum ratio of government deficit to GDP of 3%.
 - ◆ a maximum ratio of government debt to GDP of 60%.
 - ◆ financial penalties are imposed on countries with “excessive” deficits or debt.
- The *Stability and Growth Pact*, negotiated in 1997, also allows for financial penalties on countries with “excessive” deficits or debt.



Policies of the EU and EMS (cont.)

- The euro was adopted in 1999, and the previous exchange rate mechanism became obsolete.
- But a new exchange rate mechanism—ERM 2—was established between the economic and monetary union and outside countries.
 - ◆ It allowed countries (either within or outside of the EU) that wanted to enter the economic and monetary union in the future to maintain stable exchange rates before doing so.
 - ◆ It allowed EU members outside of the economic and monetary union to maintain fixed exchange rates if desired.



Theory of Optimum Currency Areas

- The theory of **optimum currency areas** argues that the optimal area for a system of fixed exchange rates, or a common currency, is one that is *highly economically integrated*.
 - ◆ economic integration means free flows of
 - goods and services (trade)
 - financial capital and physical capital
 - workers/labor (immigration and emigration)
- The theory was developed by Robert Mundell in 1961.



Theory of Optimum Currency Areas (cont.)

- Fixed exchange rates have costs and benefits for countries deciding whether to adhere to them.
- Benefits of fixed exchange rates are that they avoid the uncertainty and international transaction costs that floating exchange rates involve.
- Define this gain that would occur if a country joined a fixed exchange rate system as the **monetary efficiency gain**.



Theory of Optimum Currency Areas (cont.)

- The monetary efficiency gain of joining a fixed exchange rate system depends on the amount of economic integration.
- After joining a fixed exchange rate system:
 1. If trade is extensive between members, then transaction costs would be reduced greatly.
 2. If financial capital can flow freely between members, then the uncertainty about rates of return would be reduced greatly.
 3. If people can migrate freely across borders to work, then the uncertainty about wages would be reduced greatly.



Theory of Optimum Currency Areas (cont.)

- In general, the higher the degree of economic integration, the greater the monetary efficiency gain.
- Draw a graph of the monetary efficiency gain as a function of the degree of economic integration.

Theory of Optimum Currency Areas (cont.)

Figure 20-3

The *GG* Schedule

The upward-sloping *GG* schedule shows that a country's monetary efficiency gain from joining a fixed exchange rate area rises as the country's economic integration with the area rises.

Monetary efficiency gain for the joining country



Degree of economic integration between the joining country and the exchange rate area



Theory of Optimum Currency Areas (cont.)

When considering the monetary efficiency gain,

- we have assumed that the members of the fixed exchange rate system maintained a stable price level.
 - ◆ But when variable inflation exists among member countries, then joining the system would not reduce uncertainty (as much).
- we have assumed that a new member would be fully committed to a fixed exchange rate system.
 - ◆ But if a new member is likely to leave the fixed exchange rate system, then joining the system would not reduce uncertainty (as much).



Theory of Optimum Currency Areas (cont.)

- Economic integration also allows prices to converge between members of a fixed exchange rate system and a potential member.
 - ◆ The law of one price is expected to hold better when markets are integrated.



Theory of Optimum Currency Areas (cont.)

- Costs of fixed exchange rates are that they require the loss of monetary policy for stabilizing output and employment, and the loss of automatic adjustment of exchange rates to changes in aggregate demand.
- Define this loss that would occur if a country joined a fixed exchange rate system as the **economic stability loss**.



Theory of Optimum Currency Areas (cont.)

- The economic stability loss of joining a fixed exchange rate system also depends on the amount of economic integration.
- After joining a fixed exchange rate system, if the new member faces a fall in aggregate demand:
 1. Relative prices will tend to fall, which will lead other members to increase aggregate demand greatly if economic integration is extensive, so that the economic loss is not as great.
 2. Financial capital or labor will migrate to areas with higher returns or wages if economic integration is extensive, so that the economic loss is not as great.



Theory of Optimum Currency Areas (cont.)

3. The loss of the automatic adjustment of flexible exchange rates is not as great if goods and services markets are integrated.
 - Automatic adjustment would cause an appreciation of foreign currencies, which would cause an increase in many prices for domestic consumers when goods and services markets are integrated.



Theory of Optimum Currency Areas (cont.)

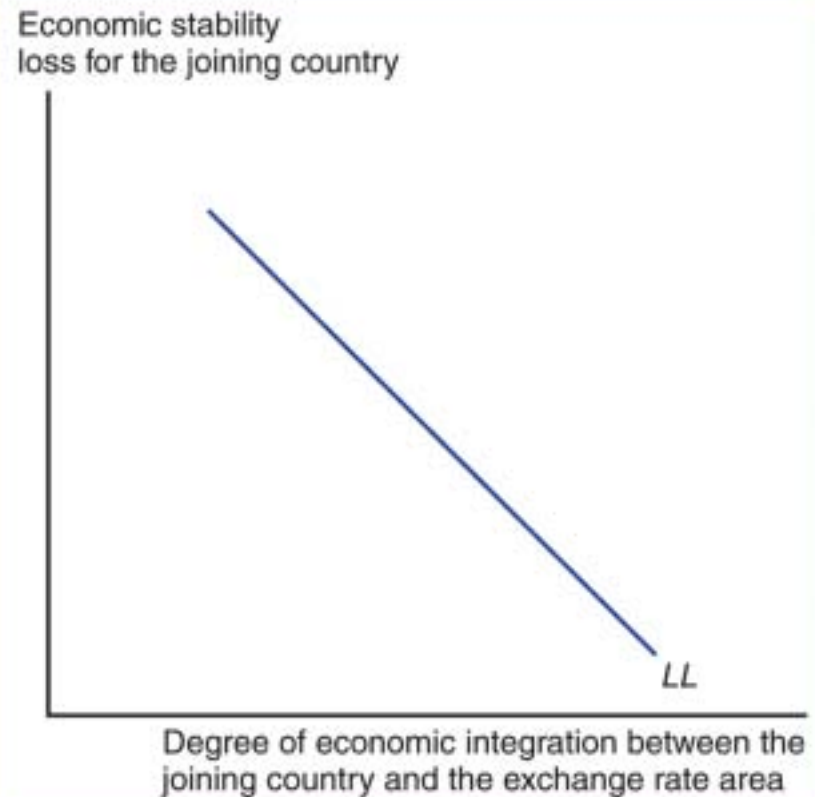
- In general, the higher the degree of economic integration, the lower the economic stability loss.
- Draw a graph of the economic stability loss as a function of the degree of economic integration.

Theory of Optimum Currency Areas (cont.)

Figure 20-4

The LL Schedule

The downward-sloping *LL* schedule shows that a country's economic stability loss from joining a fixed exchange rate area falls as the country's economic integration with the area rises.





Theory of Optimum Currency Areas (cont.)

- At some critical point measuring the degree of integration, the monetary efficiency gain will exceed the economic stability loss for a member considering joining a fixed exchange rate system.

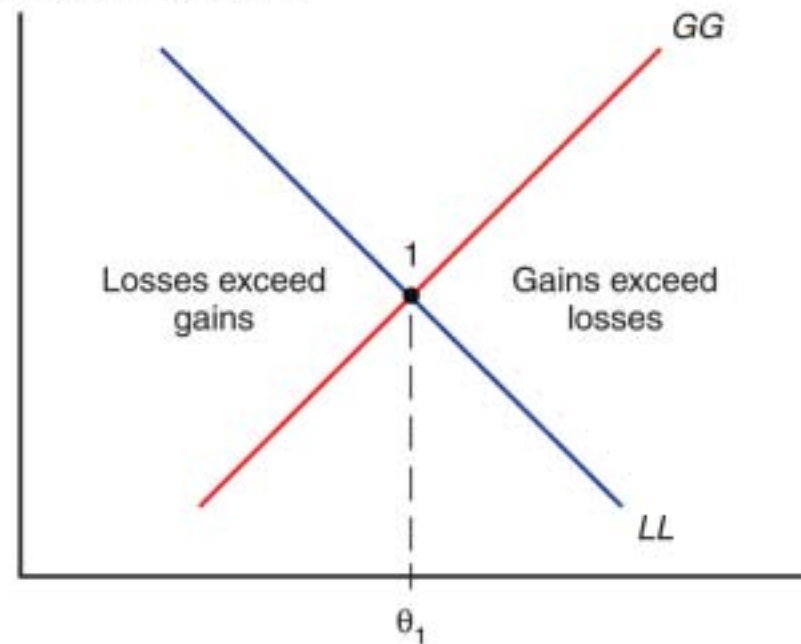
Theory of Optimum Currency Areas (cont.)

Figure 20-5

Deciding When to Peg the Exchange Rate

The intersection of *GG* and *LL* at point 1 determines a critical level of economic integration θ_1 between a fixed exchange rate area and a country considering whether to join. At any level of integration above θ_1 , the decision to join yields positive net economic benefits to the joining country.

Gains and losses
for the joining country



Degree of economic integration between the
joining country and the exchange rate area



Theory of Optimum Currency Areas (cont.)

- There could be an event that causes the frequency or magnitude of changes in aggregate demand to increase for a country.
- If so, the economic stability loss would be greater for every measure of economic integration between a new member and members of a fixed exchange rate system.
- How would this affect the critical point where the monetary efficiency gain equals economic stability loss?

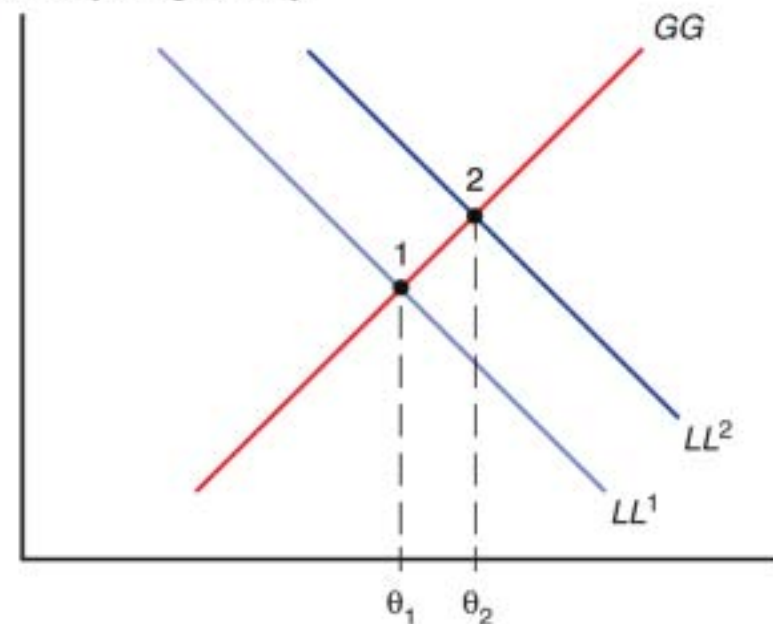
Theory of Optimum Currency Areas (cont.)

Figure 20-6

An Increase in Output Market Variability

A rise in the size and frequency of country-specific disturbances to the joining country's product markets shifts the LL schedule upward from LL^1 to LL^2 because for a given level of economic integration with the fixed exchange rate area, the country's economic stability loss from pegging its exchange rate rises. The shift in LL raises the critical level of economic integration at which the exchange rate area is joined to θ_2 .

Gains and losses for the joining country



Degree of economic integration between the joining country and the exchange rate area



Is the EU an Optimum Currency Area?

- If the EU/EMS/economic and monetary union can be expected to benefit members, we expect that its members have a high degree of economic integration:
 - ◆ large trade volumes as a fraction of GDP
 - ◆ a large amount of foreign financial investment and foreign direct investment relative to total investment
 - ◆ a large amount of migration across borders as a fraction of total labor force



Is the EU an Optimum Currency Area? (cont.)

- Most EU members export from 10% to 20% of GDP to other EU members
 - ◆ This compares with exports of less than 2% of EU GDP to the US.
 - ◆ But trade between regions in the US is a larger fraction of regional GDP.
- Was trade restricted by regulations that were removed under the Single European Act?

Is the EU an Optimum Currency Area? (cont.)

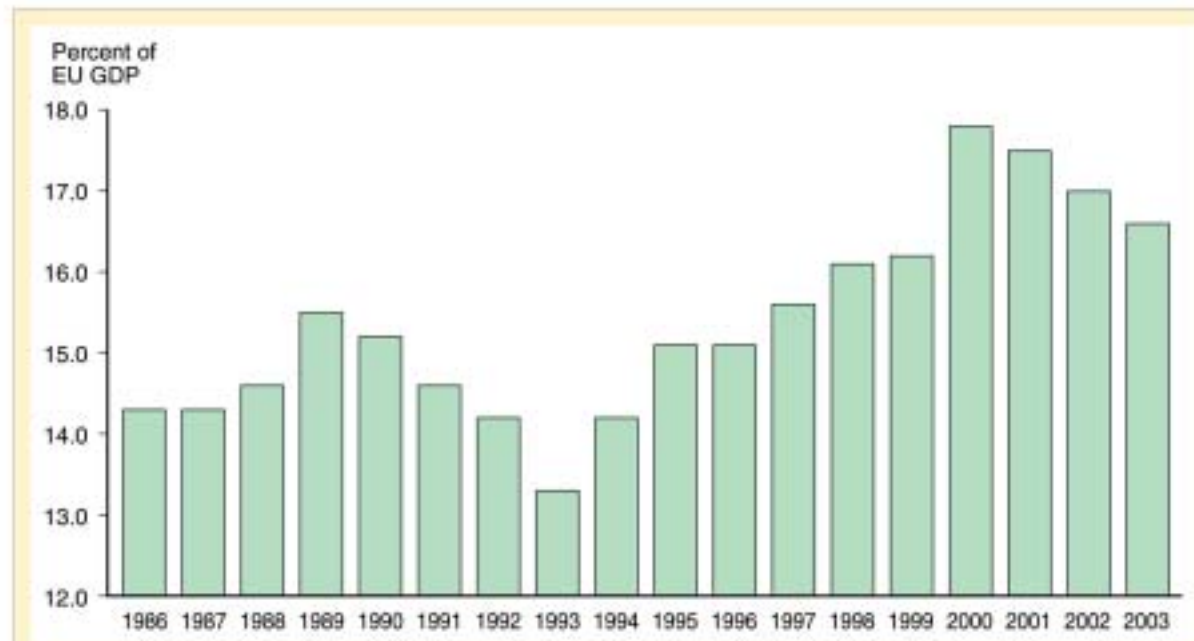


Figure 20-7

Intra-EU Trade as a Percent of EU GDP

Trade of EU countries with other EU countries has increased since the euro was introduced at the start of 1999. In constructing the figure, the extent of an EU country's trade with EU members is defined as the average of its imports from and exports to other EU countries. The numbers shown are calculated from total intra-EU trade (for all EU members) divided by the total GDP of the EU.

Sources: OECD Statistical Yearbook and Eurostat.



Is the EU an Optimum Currency Area? (cont.)

- Deviations from the law of one price also occur in many EU markets.
 - ◆ If EU markets were greatly integrated, then the (currency adjusted) prices of goods and services should be nearly the same across markets.
 - ◆ The price of the same BMW car varies 29.5% between British and Dutch markets.
 - ◆ How much does price discrimination occur?



Is the EU an Optimum Currency Area? (cont.)

- There is also no evidence that regional migration is extensive in the EU.
- Europe has many languages and cultures, which hinder migration and labor mobility.
- Unions and regulations also impede labor movements between industries and countries.

Is the EU an Optimum Currency Area? (cont.)

TABLE 20-2 People Changing Region of Residence in the 1990s (percent of total population)

Britain	Germany	Italy	United States
1.7	1.1	0.5	3.1

Source: Peter Huber, "Inter-regional Mobility in Europe: A Note on the Cross-Country Evidence," *Applied Economics Letters* 11 (August 2004), pp. 619–624; and "Geographical Mobility, 2003–2004," U.S. Department of Commerce, March 2004. Table data are for Britain in 1996, Germany in 1990, Italy in 1999, and the United States in 1999.



Is the EU an Optimum Currency Area? (cont.)

- Evidence also shows that differences of US regional unemployment rates are smaller and less persistent than differences of national unemployment rates in the EU, indicating a lack of EU labor mobility.



Is the EU an Optimum Currency Area? (cont.)

- There is evidence that financial capital flows more freely in the EU after 1992 and 1999.
- But capital mobility without labor mobility can make the economic stability loss greater.
 - ◆ After a reduction of aggregate demand in a particular EU member, financial capital could be easily transferred elsewhere while labor is stuck.
 - ◆ The loss of financial capital could further reduce production and employment.

Twelve month percent change in harmonized price index
(relative to three lowest inflation rates)

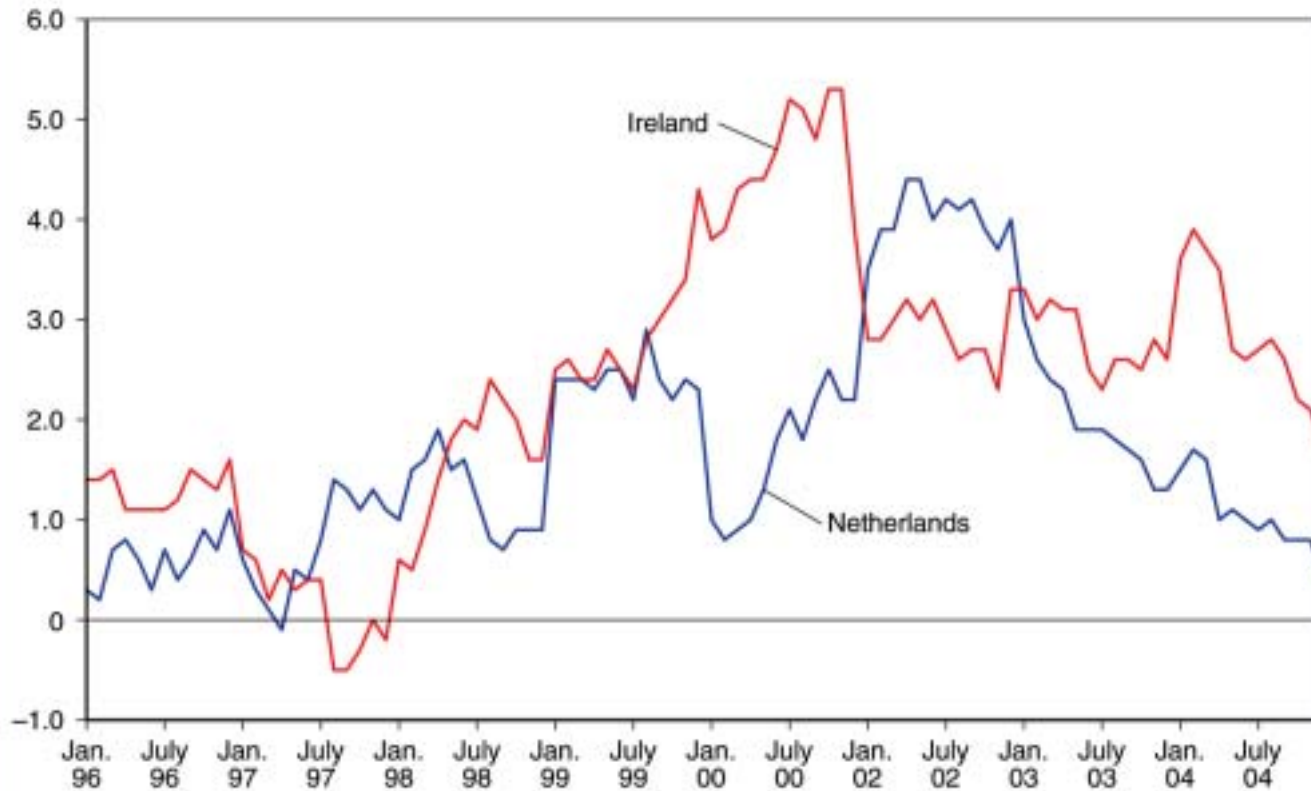


Figure 20-8

Divergent Inflation in the Euro Zone

In 1997 Ireland and the Netherlands both had inflation rates no more than 1.5 percent above the average of the three lowest EU inflation rates. Subsequently, however, both countries have violated that norm, which is one of the Maastricht Treaty's tests for admission to the euro club.



Other Considerations for an EMU

- The *structure of the economies* in the EU's economic and monetary union is important for determining how members respond to aggregate demand shocks.
 - ◆ The economies of EU members are similar in the sense that there is a high volume of *intra-industry trade* relative to the total volume.
 - ◆ They are different in the sense that Northern European countries have *high levels of physical capital per worker and more skilled labor*, compared with Southern European countries.



Other Considerations for an EMU (cont.)

- ◆ How an EU member responds to aggregate demand shocks may depend how the structure its economy compares to that of fellow EU members.
- ◆ For example, the effects of a reduction in aggregate demand caused a reduction in demand in the software industry will depend if a EU member have a large number of workers skilled in programming relative to fellow EU members.



Other Considerations for an EMU (cont.)

- The *amount of transfers* among the EU members may also affect how EU economies respond to aggregate demand shocks.
 - ◆ Fiscal payments between countries in the EU's federal system, or **fiscal federalism**, may help offset the economic stability loss from joining an economic and monetary union.
 - ◆ But relative to inter-regional transfers in the US, little fiscal federalism occurs among EU members.



Summary

1. The EMS was first a system of fixed exchange rates but later developed into a more extensive coordination of economic and monetary policies: an economic and monetary union.
2. The Single European Act of 1986 recommended that EU members remove barriers to trade, capital flows and immigration by the end of 1992.



Summary (cont.)

3. The Maastricht Treaty outlined 3 requirements for the EMS to become an economic and monetary union.
 - ◆ It also standardized many regulations and gave the EU institutions more control over defense policies.
 - ◆ It also set up penalties for spendthrift EMU members.
4. A new exchange rate mechanism was defined in 1999 vis-à-vis the euro, when the euro came into existence.



Summary (cont.)

5. An optimum currency area has members that have a high degree of economic integration among goods & services, financial capital and labor markets.
 - ◆ It is an area where the monetary efficiency gain of joining a fixed exchange rate system is at least as large as the economic stability loss.
6. The EU does not have a large degree of labor mobility due to differences in culture and due to unionization and regulation.
7. It is doubtful if the EU could be classified as an optimum currency area.