

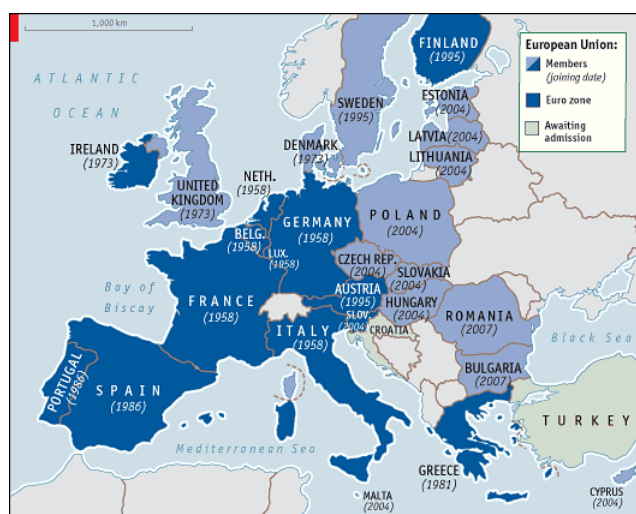
Optimum Currency Areas and the European Experience



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EC441/541: International Monetary
Theory and Policy

The Eurozone



What Is the EU?

- The European Union is a system of international institutions, the first of which originated in 1957, which now represents 27 European countries through the following bodies:
 - **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**

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 assets
 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.

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. adhere to the ERM: exchange rates were fixed in specified bands around a target exchange rate.
 2. follow restrained fiscal and monetary policies as determined by Council of the European Union and the European Central Bank.
 3. replace the national currency with the euro, whose circulation is determined by the European System of Central Banks.

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 assets, and free migration of people—in addition to fixed exchange rates or a common currency—was believed to foster economic growth and economic well-being.
 3. To make Europe **politically stable and peaceful**.

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Brief History of European Integration

- 1952 – European Coal and Steel Community, initiated by France
- 1957 – Treaty of Rome, creating the “European Economic Community,” signed by W. Germany, France, Italy, Benelux (Belgium, Netherlands, and Luxemburg)
- 1958 – EEC and the European Atomic Energy Community (EUROTOM) is created
- 1967 – European Community (EC) is created overarching EEC, Eurotom, and ECSC
- 1979 – European Monetary System is signed by France, W. Germany, Italy, Benelux, Denmark, and Ireland, starts the Exchange Rate Mechanism (ERM), a formal network of mutually pegged exchange rates w/in specified fluctuation margins in which member countries, later joined by Spain (1989), U.K. (1990), and Portugal (1992)

Why the Euro (EMU)?

EU members adopted the euro for 4 main 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. **Elimination of the possibility of devaluations/ revaluations:** with free flows of financial assets, capital flight and speculation could occur in an EMS with separate currencies, but it would be more difficult for them to occur in an EMS with a single currency.

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The EMS 1979–1998

- From 1979 to 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 1979–1998 (cont.)

To prevent speculation,

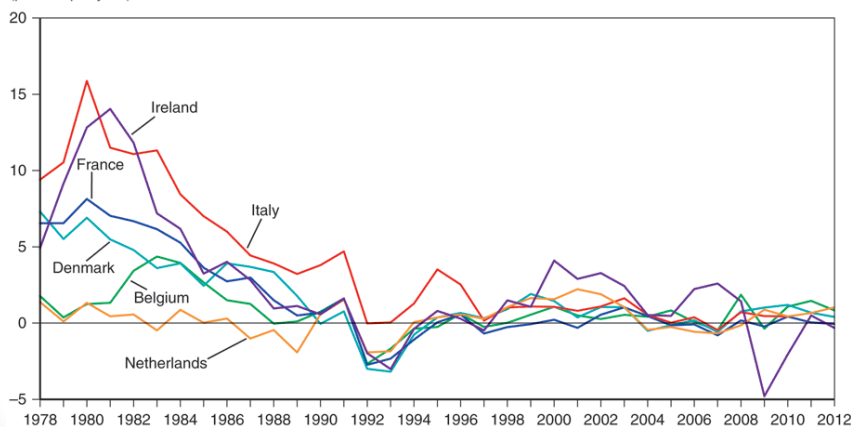
- early in the EMS some *K controls* were also enforced to limit trading of currencies.
 - But from 1987 to 1990 these controls were lifted in order to make the EU a common market for financial assets.
- A *credit system* was also developed among EMS members to lend to countries that needed assets and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

Why the EMS?

- Member countries wanted to *import W.* Germany's credibility as an inflation fighter
 - Bundesbank – famous for its strong anti-inflation policy since 1945
 - Other European countries had inflation bias (esp. southern European states)
 - As of early 1979, Germany's inflation rate = 2.7% whereas Italy's 12.1%

Inflation Convergence for Six Original EMS Members, 1978–2009

Country's annual inflation less Germany's annual inflation
(percent per year)



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

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The ERM Crisis in 1992

Before ERM crisis

- Up to the mid-1980s, the system survived with:
 - Adjustment of the bands or devaluations
 - K-Controls, esp. Italy and France
- In the mid-1980s, countries started removing K-controls gradually
- Financial liberalization did not cause instability, mainly due to inflation convergence

Once big external shock = German Reunification in 1990

- Reunification required massive income transfer from the western part of Germany to its eastern part
- Germany implemented expansionary fiscal policy

The ERM Crisis in 1992

Aftermath of German Reunification

- Expectation of inflation rose in Germany
- But other ERM countries, such as Italy, France, and U.K., weren't experiencing economic boom
- As the U.S. fell into recession in 1991, it spread to other advanced economies including ERM countries
- To take reins of inflationary expectations, Bundesbank raised the interest rate
- That required other ERM countries to raise their interest rates to maintain the peg
- U.S. dollar started depreciating due to recession, making the values of ERM currencies relatively more expensive, hurting export-dependent economies such as the U.K.
- U.K. and Italy had relatively larger gov't deficit and higher inflation rates

The ERM Crisis in 1992

ERM Crisis of September 1992

- Despite recessionary concerns, Bundesbank refused to lower the interest rate b/o inflationary concerns
- Speculative attacks started on British pound and Italian lira
- Finally, in September 1992, U.K. and Italy left the ERM
- By August 1993, the EMS decided to retreat to very wide ($\pm 15\%$) bands (from previous $\pm 6\%$) until the introduction of the Euro in 1999

Policies of the EU and EMS

- The *Single European Act of 1986* recommended that many barriers to trade, financial asset flows, and immigration be removed by December 1992.
 - It also allowed EU policy to be approved with less than unanimous consent among members.
- The *Maastricht Treaty*, proposed in 1991, required the 3 provisions to transform the EMS into an 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

The Maastricht Treaty requires that members that 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

- The euro was adopted in 1999, and the previous exchange rate mechanism became obsolete.
- But a new exchange rate mechanism— ERM II — 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 (assets) 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.
- The gain that would occur if a country joined a fixed exchange rate system is called the **monetary efficiency gain**.

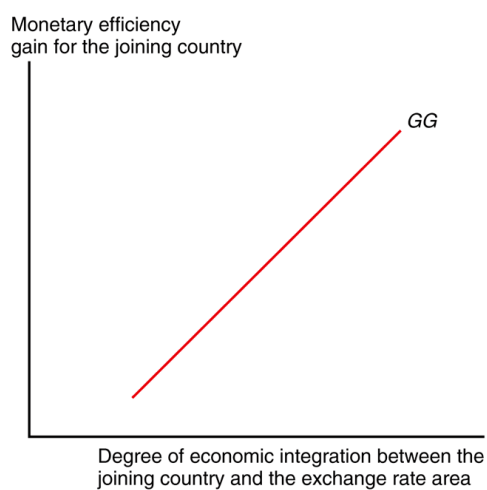
Theory of Optimum Currency Areas (cont.)

- The monetary efficiency gain of joining a fixed exchange rate system depends on the amount of economic integration.
- Joining fixed exchange rate system would be beneficial for a country if
 1. trade is extensive between it and member countries, because transaction costs would be greatly reduced.
 2. financial assets flow freely between it and member countries, because the uncertainty about rates of return would be greatly reduced.
 3. people migrate freely between it and member countries, because the uncertainty about the purchasing power of wages would be greatly reduced.

Theory of Optimum Currency Areas (cont.)

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

The *GG* Schedule



Theory of Optimum Currency Areas (cont.)

When considering the monetary efficiency gain,

- we have assumed that the members of the fixed exchange rate system would maintain stable prices.
 - 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 assets 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.

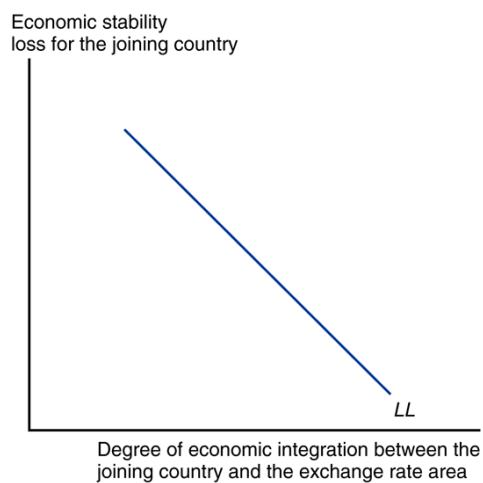
Theory of Optimum Currency Areas (cont.)

3. The loss of the automatic adjustment of flexible exchange rates is not as great if goods and services markets are integrated. Why?
 - Consider what would have happened if the country did not join the fixed exchange rate system:
 - the automatic adjustment would have caused a depreciation of the domestic currency and an appreciation of foreign currencies, which would have caused an increase in many prices for domestic consumers when goods and services markets are integrated.

Theory of Optimum Currency Areas (cont.)

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

Fig. 20-4: The *LL* Schedule

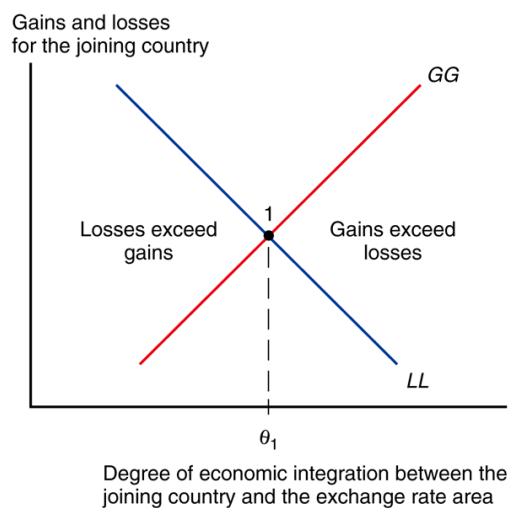


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Theory of Optimum Currency Areas (cont.)

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

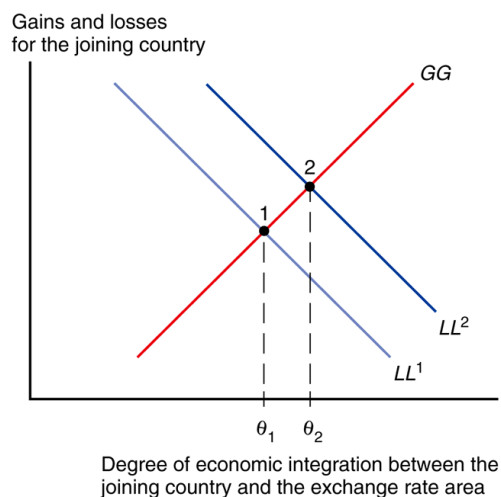
Deciding When to Peg the Exchange Rate



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?

An Increase in Output Market Variability



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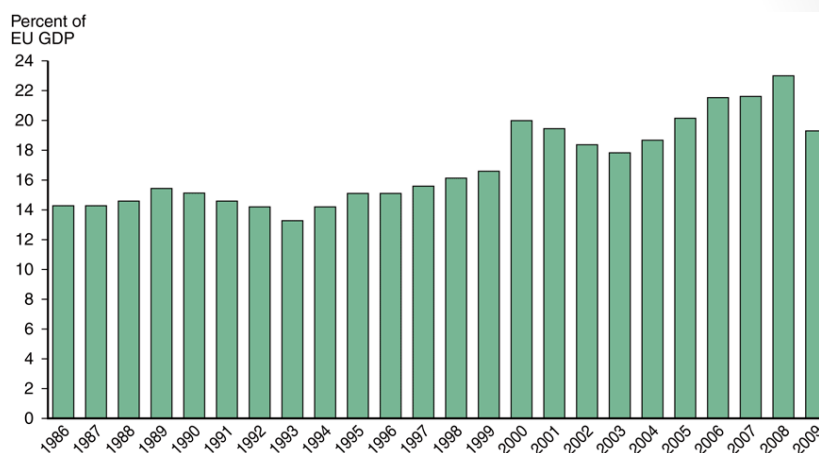
Is the EU an Optimum Currency Area?

- 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 U.S.
 - But trade between regions in the U.S. is a larger fraction of regional GDP.
- Was trade restricted by regulations that were removed under the Single European Act?

Fig. 20-7: Intra-EU Trade as a Percent of EU GDP



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.

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

- Regional migration is not 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.
- Differences of U.S. unemployment rates across regions 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 assets were able to move more freely within 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 country, financial assets could be easily transferred elsewhere while labor is stuck.
 - The loss of financial assets could further reduce production and employment.

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People Changing Region of Residence in the 1990s (percent of total population)

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

Sources: 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.

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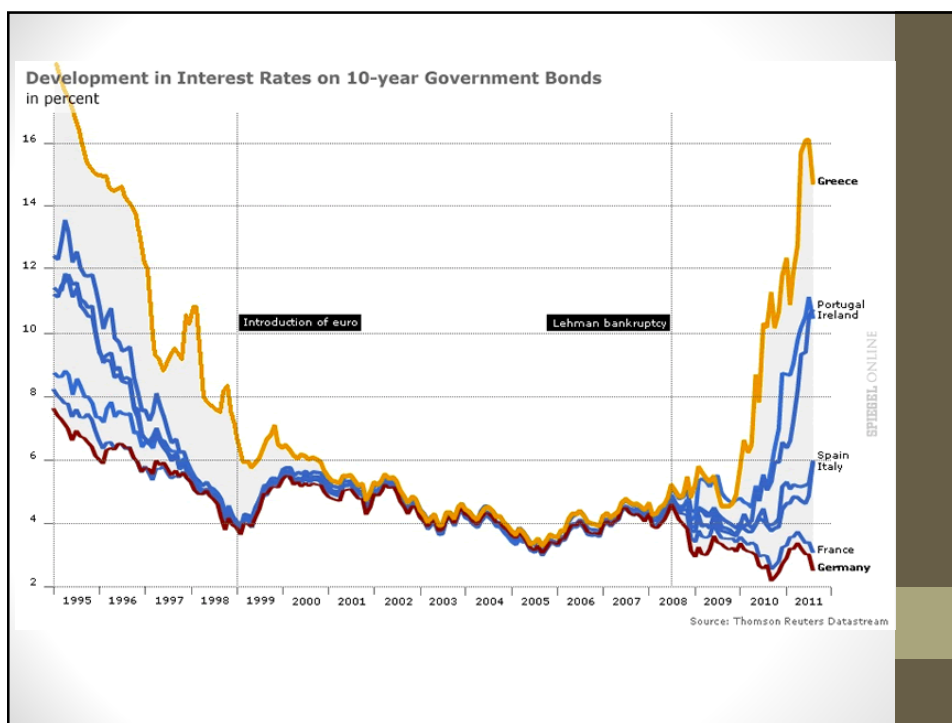


Table 21-3: Assets of Some Individual Banks as a Ratio to National Output, End-2011

Bank	Home country	Bank assets
Erste Group Bank	Austria	0.68
Dexia	Belgium	1.10
BNP Paribas	France	0.97
Deutsche Bank	Germany	0.82
Bank of Ireland	Ireland	0.95
UniCredit	Italy	0.59
ING Group	Netherlands	2.12
Banco Commercial Português	Portugal	0.57
Banco Santander	Spain	1.19

Source: GDP data from International Monetary Fund, *World Economic Outlook* database. Data on bank assets from Viral V. Acharya and Sascha Steffen, "The 'Greatest' Carry Trade Ever? Understanding Eurozone Bank Risks," Discussion Paper 9432, Centre for Economic Policy Research, April 2013.

Fig. 21-8: Nominal Government Borrowing Spreads over Germany

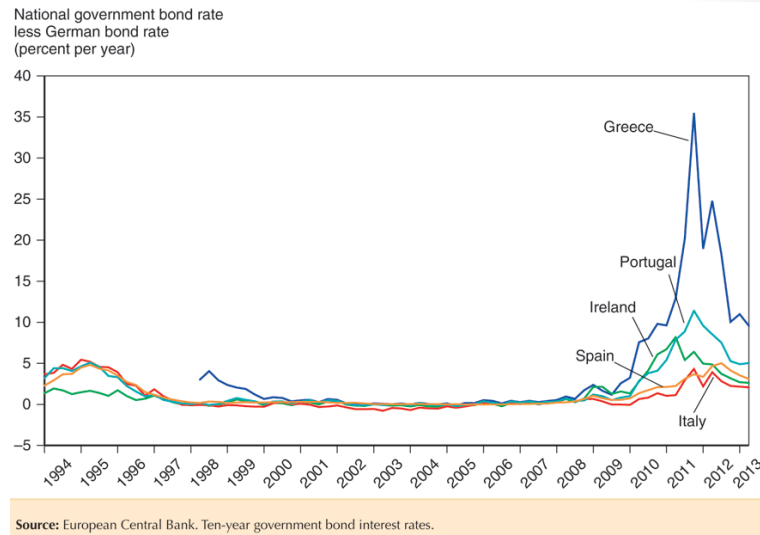


Fig. 21-9: Real Appreciation in Peripheral Euro Zone Countries

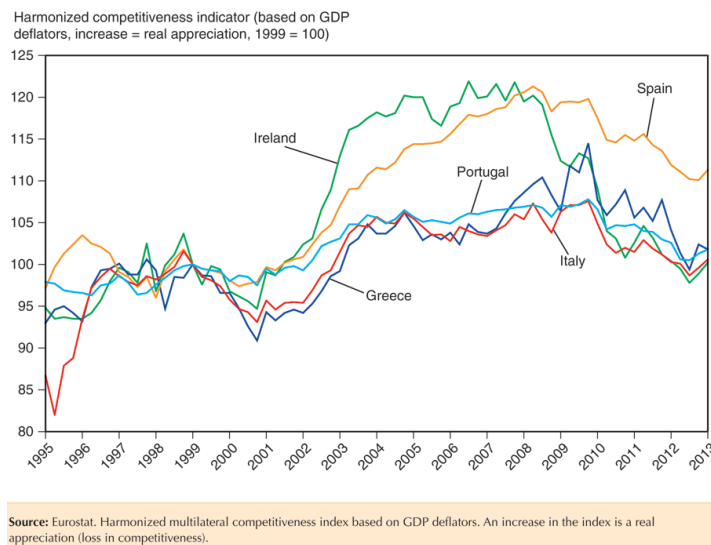
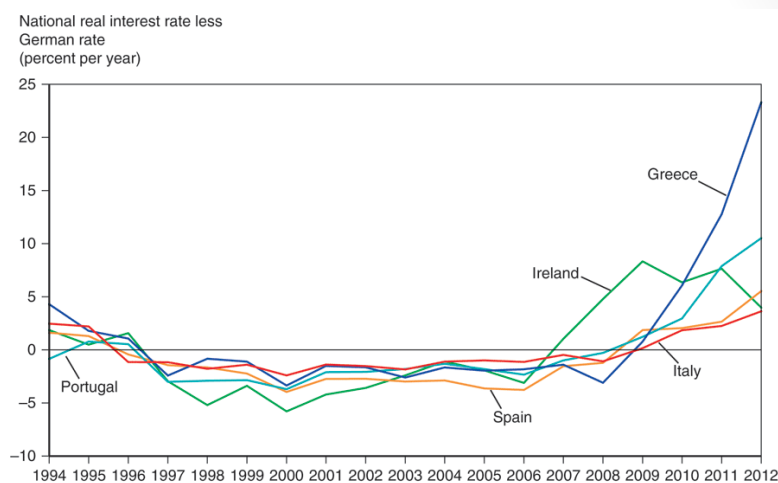


Fig. 21-10: Divergent Real Interest Rates in the Euro Zone



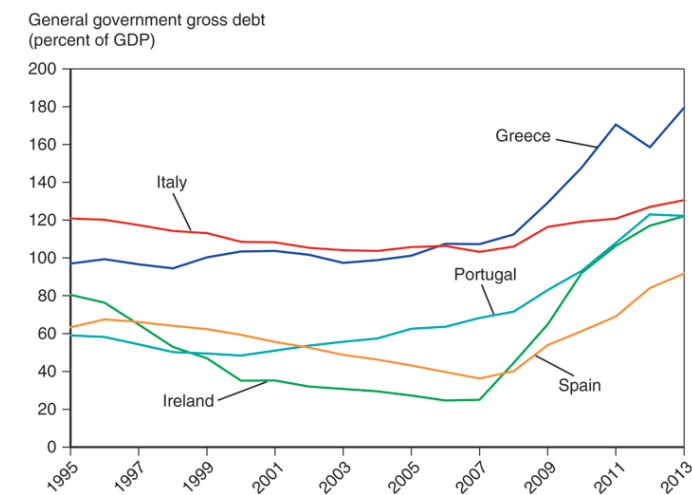
Source: Datastream.

Table 21-4: Current Account Balances of Euro Zone Countries, 2005–2009 (percent of GDP)

	Greece	Ireland	Italy	Portugal	Spain	Germany
2005	-7.5	-3.5	-1.7	-9.4	-7.4	5.1
2006	-11.2	-4.1	-2.6	-9.9	-9.0	6.5
2007	-14.4	-5.3	-2.4	-9.4	-10.0	7.6
2008	-14.6	-5.3	-3.4	-12.0	-9.8	6.7
2009	-11.2	-2.9	-3.1	-10.3	-5.4	5.0

Source: International Monetary Fund.

Fig. 21-11: Gross Public Debt to GDP Ratios in the Euro Area



Source: International Monetary Fund, *World Economic Outlook* database.

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

- There is evidence that financial assets were able to move more freely within 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 country, financial assets could be easily transferred elsewhere while labor is stuck.
 - The loss of financial assets could further reduce production and employment.

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 on how the structure of its economy compares to that of fellow EU members.
- For example, the effects on an EU member of a reduction in aggregate demand caused by a reduction in demand in the software industry will depend on whether the EU member has 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 interregional transfers in the U.S., little fiscal federalism occurs among EU members.

The Future of EMU

- EMU must overcome some difficult challenges, however, if it is to survive its current crisis and prosper.
 - Europe is not an optimum currency area. Therefore, asymmetric economic developments within different countries of the euro zone - developments that might well call for different national interest rates under a regime of individual national currencies - will remain hard to handle through monetary policy.

The Future of EMU (cont.)

- In most EU countries, labor markets remain highly unionized and subject to employment taxes and regulations that impede labor mobility between industries and regions. The result has been persistently high levels of unemployment. Unless labor markets become much more flexible, individual euro zone countries will have a hard time adjusting toward full employment and competitive real exchange rates. Other structural problems also abound.
- Thus, the euro faces significant challenges in the years ahead