Chapter 20
Optimum Currency Areas
and the European Experience

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To Accompany
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by Paul R. Krugman and Maurice Obstfeld
Chapter Organization

- How the European Single Currency Evolved
- The Euro and Economic Policy in the Euro Zone
- The Theory of Optimum Currency Areas
- The Future of EMU
- Summary
Introduction

- European Union countries have progressively narrowed the fluctuations of their currencies against each other.
  - This culminated in the birth of the euro on January 1, 1999.

- This chapter focuses on the following questions:
  - How and why did Europe set up its single currency?
  - Will the euro be good for the economies of its members?
  - How will the euro affect countries outside of the European Monetary Union (EMU)?
  - What lessons does the European experience carry for other potential currency blocks?
Introduction

Figure 20-1: Members of the Euro Zone as of January 1, 2001
## Table 20-1: A Brief Glossary of Euronyms

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>ECB</td>
<td>European Central Bank</td>
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<tr>
<td>ESCB</td>
<td>European System of Central Banks</td>
</tr>
<tr>
<td>EMS</td>
<td>European Monetary System</td>
</tr>
<tr>
<td>EMU</td>
<td>Economic and Monetary Union</td>
</tr>
<tr>
<td>ERM</td>
<td>Exchange Rate Mechanism</td>
</tr>
<tr>
<td>SGP</td>
<td>Stability and Growth Pact</td>
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</tbody>
</table>
European Currency Reform Initiatives, 1969-1978

- The Werner report (1969)
  - It set out a blueprint for the stage-by-stage realization of Economic and Monetary Union by proposing a three-phase program to:
    - Eliminate intra-European exchange rate movements
    - Centralize EU monetary policy decisions
    - Lower remaining trade barriers within Europe

- Two major reasons for adopting the Euro:
  - To enhance Europe’s role in the world monetary system
  - To turn the European Union into a truly unified market
The European Monetary System, 1979-1998

- Germany, the Netherlands, Belgium, Luxemburg, France, Italy, and Britain participated in an informal joint float against the dollar known as the “snake.”
  - Most exchange rates could fluctuate up or down by as much as 2.25% relative to an assigned par value.
  - The snake served as a prologue to the more comprehensive European Monetary System (EMS).
- Eight original participants in the EMS’s exchange rate mechanism began operating a formal network of mutually pegged exchange rates in March 1979.
• Capital controls and frequent realignments were essential ingredients in maintaining the system until the mid-1980s.
  – After the mid-1980s, these controls have been abolished as part of the EU’s wider “1992” program of market unification.
• During the currency crisis that broke out in September 1992, Britain and Italy allowed their currencies to float.
• In August 1993 most EMS currency bands were widened to ± 15% in the face of continuing speculative attacks.
German Monetary Dominance and the Credibility Theory of the EMS

- Germany has low inflation and an independent central bank.
  - It also has the reputation for tough anti-inflation policies.

- **Credibility theory of the EMS**
  - By fixing their currencies to the DM, the other EMS countries in effect imported the German Bundesbank’s credibility as an inflation fighter.
  - Inflation rates in EMS countries tended to converge around Germany’s generally low inflation rate.
How the European Single Currency Evolved

**Figure 20-2**: Inflation Convergence Within Six Original EMS Members, 1978-2000

*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. As of 1997 all national inflation rates were very close to the German levels.*


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The EU “1992” Initiative

- The EU countries have tried to achieve greater internal economic unity by:
  - Fixing mutual exchange rates
  - Direct measures to encourage the free flow of goods, services, and factors of production
- The process of market unification began when the original EU members formed their customs union in 1957.
- The Single European Act of 1986 provided for a free movement of people, goods, services, and capital and established many new policies.
• European Economic and Monetary Union
• In 1989, the Delors report laid the foundations for the single currency, the euro.

  • Economic and monetary union (EMU)
    – A European Union in which national currencies are replaced by a single EU currency managed by a sole central bank that operates on behalf of all EU members.
How the European Single Currency Evolved

• Three stages of the Delors plan:
  – All EU members were to join the EMS exchange rate mechanism (ERM)
  – Exchange rate margins were to be narrowed and certain macroeconomic policy decisions placed under more centralized EU control
  – Replacement of national currencies by a single European currency and vesting all monetary policy decisions in a ESCB
Maastricht Treaty (1991)

- It set out a blueprint for the transition process from the EMS fixed exchange rate system to EMU.
- It specified a set of macroeconomic convergence criteria that EU countries need to satisfy for admission to EMU.
- It included steps toward harmonizing social policy within the EU and toward centralizing foreign and defense policy decision.
EU countries moved away from the EMS and toward the single shared currency for four reasons:

- Greater degree of European market integration
- Same opportunity as Germany to participate in system-wide monetary decisions
- Complete freedom of capital movements
- Political stability of Europe
The Euro and Economic Policy in the Euro Zone

- The Maastricht Convergence Criteria and the Stability and Growth Pact

  - The Maastricht Treaty specifies that EU member countries must satisfy several convergence criteria:
    - Price stability
      - Maximum inflation rate 1.5% above the average of the three EU member states with lowest inflation
    - Exchange rate stability
      - Stable exchange rate within the ERM without devaluing on its own initiative
    - Budget discipline
      - Maximum public-sector deficit 3% of the country’s GDP
      - Maximum public debt 60% of the country’s GDP
Figure 20-3: Behavior of the Euro’s Exchange Rates Against Major Currencies

Progress of the euro
Euro vs leading currencies (rebased Jan 1 1991=100)

Euro exchange rates

<table>
<thead>
<tr>
<th>Currency</th>
<th>Exchange Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dollar</td>
<td>0.8947</td>
</tr>
<tr>
<td>Sterling</td>
<td>0.6207</td>
</tr>
<tr>
<td>Yen</td>
<td>117.282</td>
</tr>
<tr>
<td>Danish krone</td>
<td>7.4413</td>
</tr>
<tr>
<td>Swiss franc</td>
<td>1.4769</td>
</tr>
<tr>
<td>Swedish krona</td>
<td>9.2375</td>
</tr>
</tbody>
</table>

A modest rally in the euro last week ran out of steam on Friday, leaving the currency close to its average over the last twelve months.

Source: Thomson Financial Datastream
A Stability and Growth Pact (SGP) in 1997 sets up:

- The medium-term budgetary objective of positions close to balance or in surplus
- A timetable for the imposition of financial penalties on counties that fail to correct situations of “excessive” deficits and debt promptly enough
The European System of Central Banks

- It consists of the European Central Bank in Frankfurt plus 12 national central banks.
- It conducts monetary policy for the euro zone.
- It is dependent on politicians in two respects:
  - The ESCB’s members are political appointments.
  - The Maastricht Treaty leaves exchange rate policy for the euro zone ultimately in the hands of the political authorities.
The Revised Exchange Rate Mechanism

- It defines broad exchange rate zones for EU countries that are not yet members of EMU against the euro.
  - It specifies reciprocal intervention arrangements to support these target zones.
  - It is referred to as ERM 2.

- It was viewed necessary in order to:
  - Discourage competitive devaluations against the euro by EU members outside the euro zone
  - Give would-be EMU entrants a way of satisfying the exchange rate stability convergence criterion
The Theory of Optimum Currency Areas

- Theory of optimum currency areas
  - It predicts that fixed exchange rates are most appropriate for areas closely integrated through international trade and factor movements.
Economic Integration and the Benefits of a Fixed Exchange Rate Area: *GG* Schedule

- **Monetary efficiency gain**
  - The joiner’s saving from avoiding the uncertainty, confusion, and calculation and transaction costs that arise when exchange rates float.
  - It is higher, the higher the degree of economic integration between the joining country and the fixed exchange rate area.

- ***GG* schedule**
  - It shows how the potential gain of a country from joining the euro zone depends on its trading link with that region.
  - It slopes upward.
The Theory of Optimum Currency Areas

Figure 20-4: The GG Schedule

Monetary efficiency gain for the joining country

Degree of economic integration between the joining country and the exchange rate area
Economic Integration and the Costs of a Fixed Exchange Rate Area: The $LL$ Schedule

- **Economic stability loss**
  - The economic stability loss that arises because a country that joins an exchange rate area gives up its ability to use the exchange rate and monetary policy for the purpose of stabilizing output and employment.
  - It is lower, the higher the degree of economic integration between a country and the fixed exchange rate area that it joins.

- **$LL$ schedule**
  - It shows the relationship of the country’s economic stability loss from joining.
  - It slopes downward.
Figure 20-5: The $LL$ Schedule

Economic stability loss for the joining country

Degree of economic integration between the joining country and the exchange rate area
The Decision to Join a Currency Area: Putting the \textit{GG} and \textit{LL} Schedules Together

- The intersection of \textit{GG} and \textit{LL}
  - Determines a critical level of economic integration between a fixed exchange rate area and a country
  - Shows how a country should decide whether to fix its currency’s exchange rate against the euro
The Theory of Optimum Currency Areas

Figure 20-6: Deciding When to Peg the Exchange Rate

Gains and losses for the joining country

- Gains exceed losses
- Losses exceed gains

\[ GG \]

\[ LL \]

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

\[ \theta_1 \]
The Theory of Optimum Currency Areas

- The *GG-LL* framework can be used to examine how changes in a country’s economic environment affect its willingness to peg its currency to an outside currency area.
  - Figure 20-7 illustrates an increase in the size and frequency of sudden shifts in the demand for the country’s exports.
The Theory of Optimum Currency Areas

Figure 20-7: An Increase in Output Market Variability

Gains and losses for the joining country

Degree of economic integration between the joining country and the exchange rate area
What Is an Optimum Currency Area?

- It is a region where it is best (optimal) to have a single currency.
- Optimality depends on degree of economic integration:
  - Trade in goods and services
  - Factor mobility
- A fixed exchange rate area will best serve the economic interests of each of its members if the degree of output and factor trade among them is high.
The Theory of Optimum Currency Areas

Figure 20-8: Intra-EU Trade as a Percent of EU GDP

Trade of EU countries with other EU countries has shown no trend since the late 1980s and has remained between 10 and 20 percent of GDP on average. 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.

The Theory of Optimum Currency Areas

**Table 20-2: People Changing Region of Residence in 1986 (percent of total population)**

<table>
<thead>
<tr>
<th>Britain</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Japan</th>
<th>United States</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>1.3</td>
<td>1.1</td>
<td>0.6</td>
<td>2.6</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Case Study: Is Europe an Optimum Currency Area?

- Europe is not an optimum currency area:
  - Most EU countries export form 10% to 20% of their output to other EU countries.
  - EU-U.S. trade is only 2% of U.S. GNP.
  - Labor is much more mobile within the U.S. than within Europe.
  - Federal transfers and changes in federal tax payments provide a much bigger cushion for region-specific shocks in the U.S. than do EU revenues and expenditures.
The Theory of Optimum Currency Areas

Figure 20-9: 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 violated that norm, which is one of the Maastricht Treaty’s tests for admission to the euro club.
The Future of EMU

- If EMU succeeds it will promote European political as well as economic integration.
- If EMU fails the goal of European political unification will be set back.
- Problems that the EMU will face in the coming years:
  - Europe is not an optimum currency area.
  - Economic union is so far in front of political union.
  - EU labor markets are very rigid.
  - SGP constrains fiscal policies.
Summary

- Fixed exchange rates in Europe were a by-product of the Bretton Woods system.
- The EMS of fixed intra-EU exchange rates was inaugurated in March 1979.
- In practice all EMS currencies were pegged to the DM.
- On January 1, 1999, 11 EU countries initiated an EMU by adopting a common currency, the euro.
  - Greece became the 12th member two years later.
The Maastricht Treaty specified a set of macroeconomic convergence criteria that EU countries would need to satisfy to qualify for admission to EMU.

The theory of optimum currency areas implies that countries will wish to join fixed exchange rate areas closely linked to their own economies through trade and factor mobility.

The EU does not appear to satisfy all of the criteria for an optimum currency area.