Lecture 7: Intermediate macroeconomics, autumn 2008

Lars Calmfors

EMU – Economic and Monetary Union

- **An old idea in the European Union**

- **1989: Delors report**

- **1991: Maastricht treaty**

- **1997: Stability pact**

- **Eleven of then 15 EU countries joined from the start (Denmark and the UK have the formal right to stay out according to the Maastricht treaty, Sweden has no such formal right but chose to stay outside all the same, Greece did not meet the entry requirements)**

- **1 January 1999: the euro was introduced in "electronic" form (shares, bonds, bank transactions etc. and ECB (European Central Bank) in Frankfurt became responsible for the common monetary policy in the euro area**

- **1 January 2001: Greece entered (twelve members)**

- **1 January 2002: the euro was introduced as a physical means of payments (bills and coins)**

- **1 January 2007: Slovenia entered (13 members)**

- **1 January 2008: Cyprus and Malta entered (15 members)**

- **1 January 2009: Slovak Republic will enter (16 members)**

- **Estonia, Latvia and Lithuania?**

     - Lithuania's application rejected 2006

- **Poland?**

Swedish decision process

- **Government Commission on the EMU 1995-96**

- **Parliamentary decision not to join 1997**

- **Government Commission on Stabilisation Policy in the Event of Swedish Membership 2000-02**

- **No vote in euro referendum 2003**

Evaluation of benefits and costs of EMU membership

Theory on *Optimal Currency Areas (OCA)*

Robert Mundell: 1999 Riksbanken Prize in Economic Sciences in Memory of Alfred Nobel (Nobel Prize in Economics)

Analysis of the Swedish Government Commission on the EMU

- **Social efficiency aspects**
- **Stabilisation policy aspects**
- **Political (Political science) aspects**

Social efficiency

- **Lower transaction costs in the case of international payments**
  - **resource savings of 0,1 – 0,2 per cent of GDP in banking sector. Additional savings (but probably smaller) in the rest of the economy.**
- **No exchange rate risk when payments are made within the euro area**
  - **Positive effect on foreign trade and cross-border (financial and direct) investment**
  - **Intensive debate on how large these effects are**
- **More intensive competition**
  - **price comparisons become easier to make**
  - **higher price elasticities of demand (firms' price mark-ups over marginal costs fall)**
  - $P = \varepsilon / (\varepsilon - 1) \, MC$
- **But no reason to expect lower inflation inside the EMU than outside for a country like Sweden (more or less the same price stabilization policy)**
- **Possibly lower real rate of interest because of lower risk premium**

$$R = R^* + (E^e - E) / E + \rho \iff R - \pi^e = R^* - \pi^{e*} + \rho$$

- **Earlier large difficulties find empirical support for more foreign trade with smaller exchange rate fluctuations**
- **But a common currency may represent a more fundamental change of the monetary regime than a reduction of exchange rate fluctuations between different currencies**
- **Studies by Andy Rose and others:** *huge* **trade effects of a common currency (+ 100-200 %) in the long run**
  - **panel data from 1970: variation both across countries and over time**
  - **limited number of countries with observations of common currencies**
  - **non-representative observations (poor countries, earlier colonies, small countries or regions like Monaco, the Vatican and Pitcairn)**
  - **other factors?**
- **Studies of what actually happened after the start of the EMU**
  - **+ 5–15 % in most studies**
  - **Harry Flam and Håkan Nordström: + 25 % (but trade of non-euro countries with euro countries has increased with around 13 % because of the intro-duction of the euro so the** *net* **effect is about of euro membership is about half**

Trade and growth

- **Increased trade because of lower trade barriers imply a more efficient use of resources**
  - **traditional trade theory: better use of comparative advantages**
  - **new trade theory: more specialisation allows economies of scale to be exploited to a larger extent**
- **Neoclassical growth theory (Solow model): GDP per capita increases from one level to another – temporarily higher growth during an adjustment period (20-30 years))**
- **Endogenous growth theory: permanently higher growth**
  - **more intense competition $\Rightarrow$ higher rate of innovation**
  - **faster diffusion of innovations through trade**
- **Empirical research seems to confirm that more trade implies higher growth**
  - **Frankel and Rose (2000): each percentage point rise of trade intensity (exports + imports/ /2 · GDP $\Rightarrow$ GDP per capita $\uparrow$ 1/3 per cent**
  - **UK report on euro membership: long-run rise of GDP per capita by med 0.5 – 9 %**
  - **but recently much faster productivity growth in Sweden and the UK than in France, Germany and Italy**
  - **other factors than a common currency are probably far more important for productivity growth than a common currency**
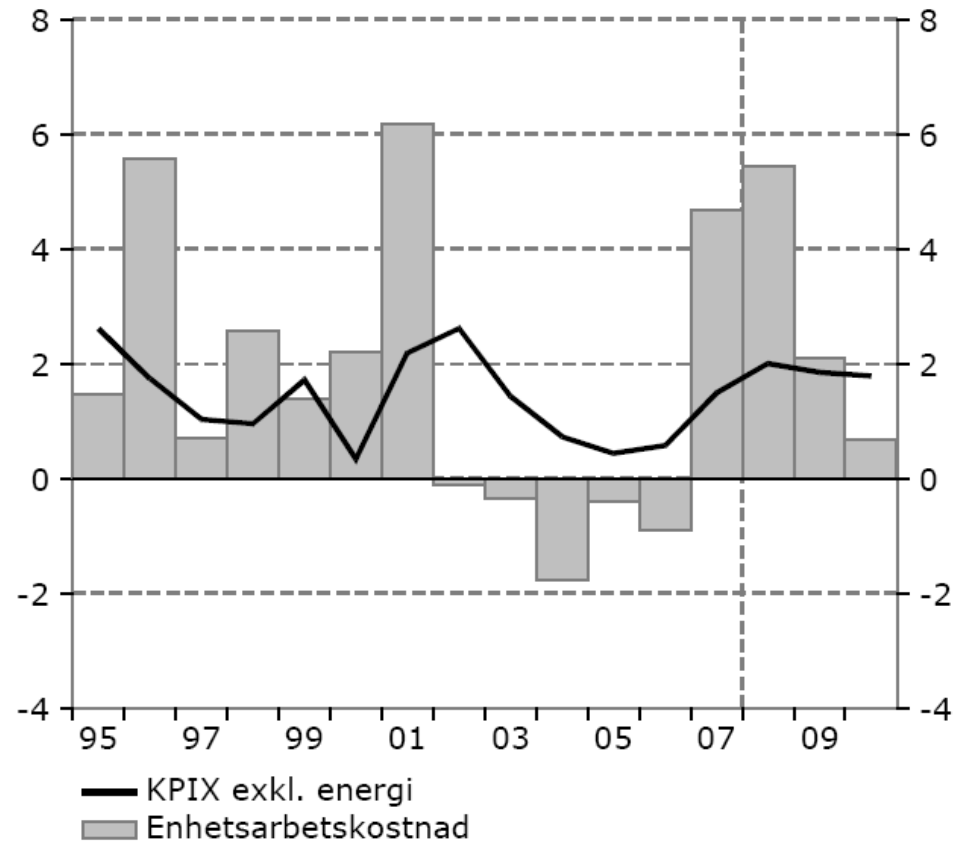
Diagram 44 Inflation i euroområdet

Procent, månadsvärden

Konsumentpriser (HIKP)

HIKP exkl. energi, livsmedel, alkohol och tobak
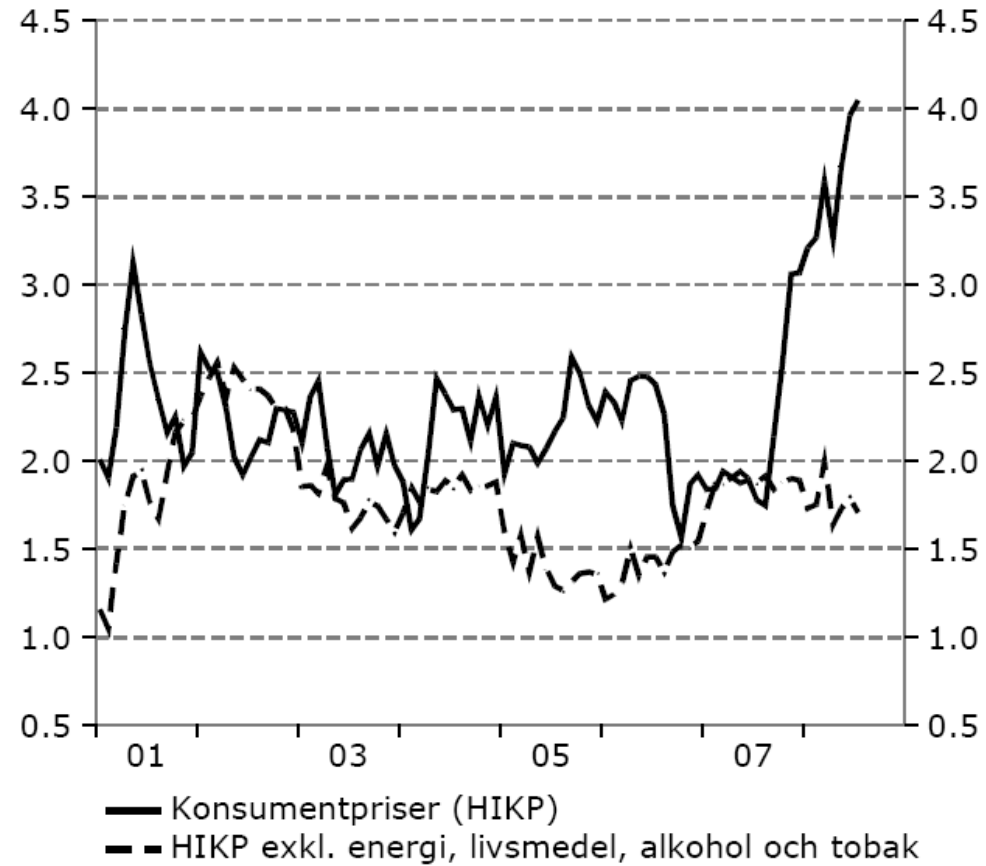
Källa: Eurostat.

Diagram 162 Konsumentpriser och enhetsarbetskostnad

Årlig procentuell förändring

KPIX exkl. energi
Enhetsarbetskostnad

Källor: SCB och Konjunkturinstitutet.

Diagram 55 Långräntor, tioåriga statsobligationer

Procent, månadsvärden

Källa: Riksbanken.

Diagram 56 Realobligationsräntor
Procent, veckovärden

USA
- - Sverige
— Euroområdet

Anm. Löptiden är ca 10 år. För euroområdet avses en fransk realobligation.
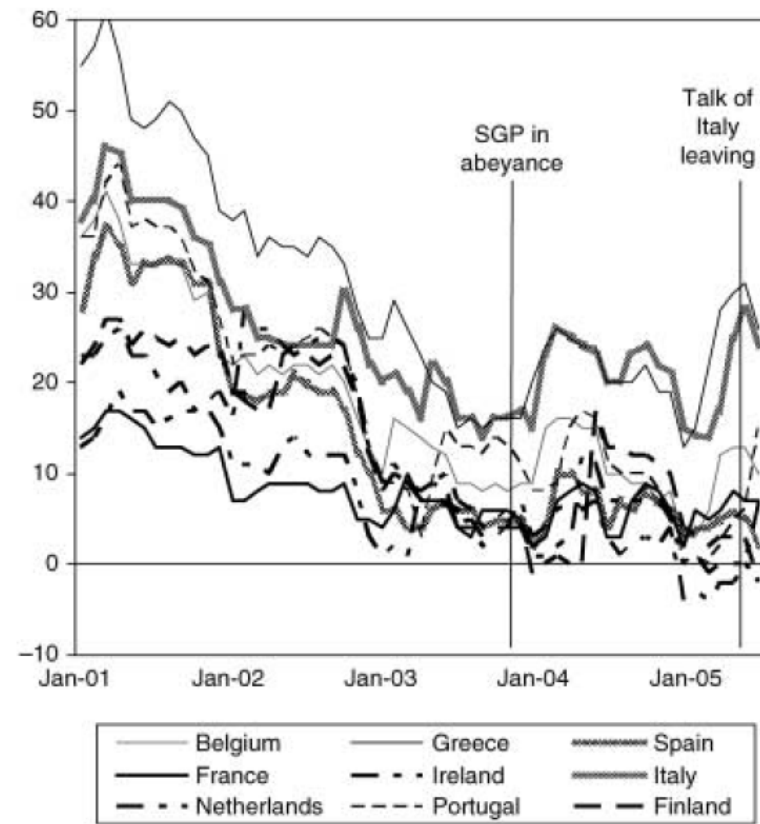Källa: Reuters EcoWin.

Figure 1. Ten-year government bonds: spreads relative to Germany (b.p.)
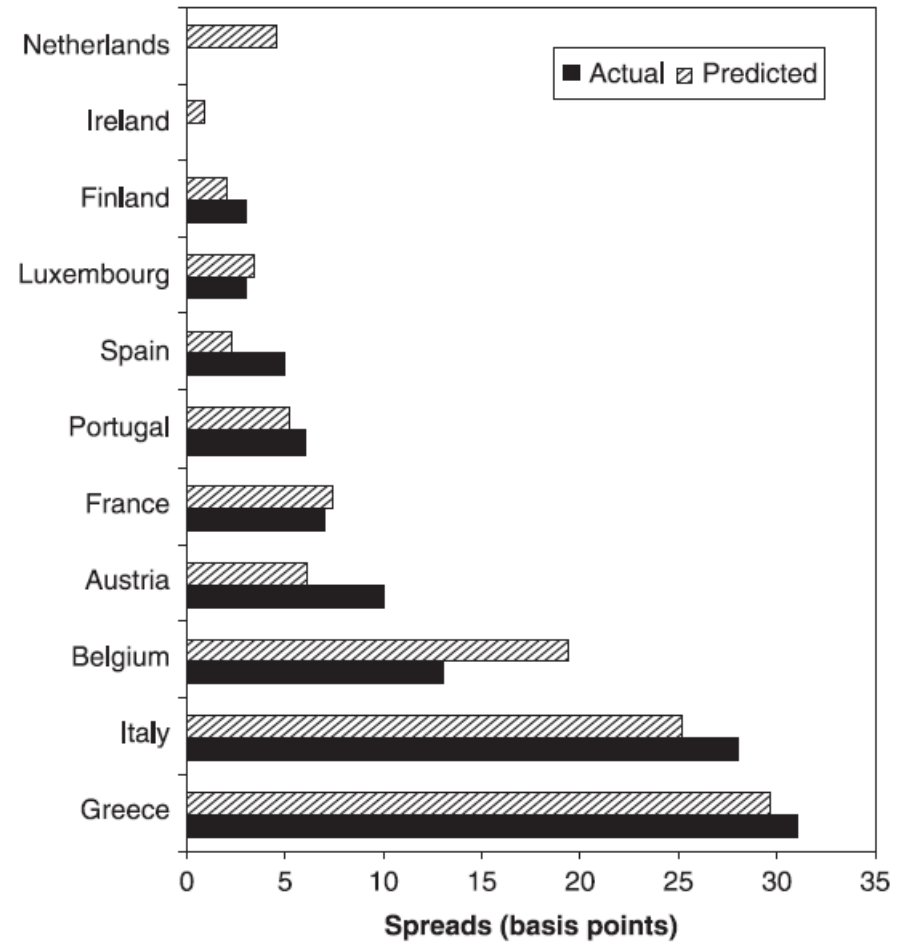
Source: European Central Bank.

Figure 2. Actual and predicted spreads (b.p.)

Source: Author's calculations.

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.

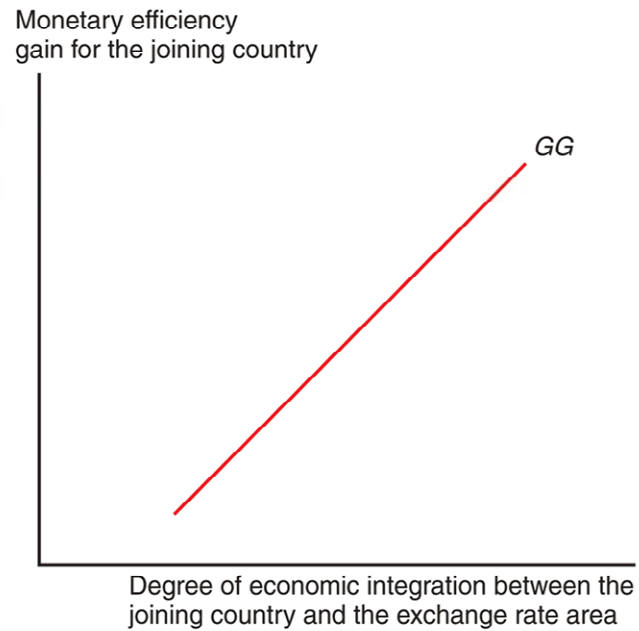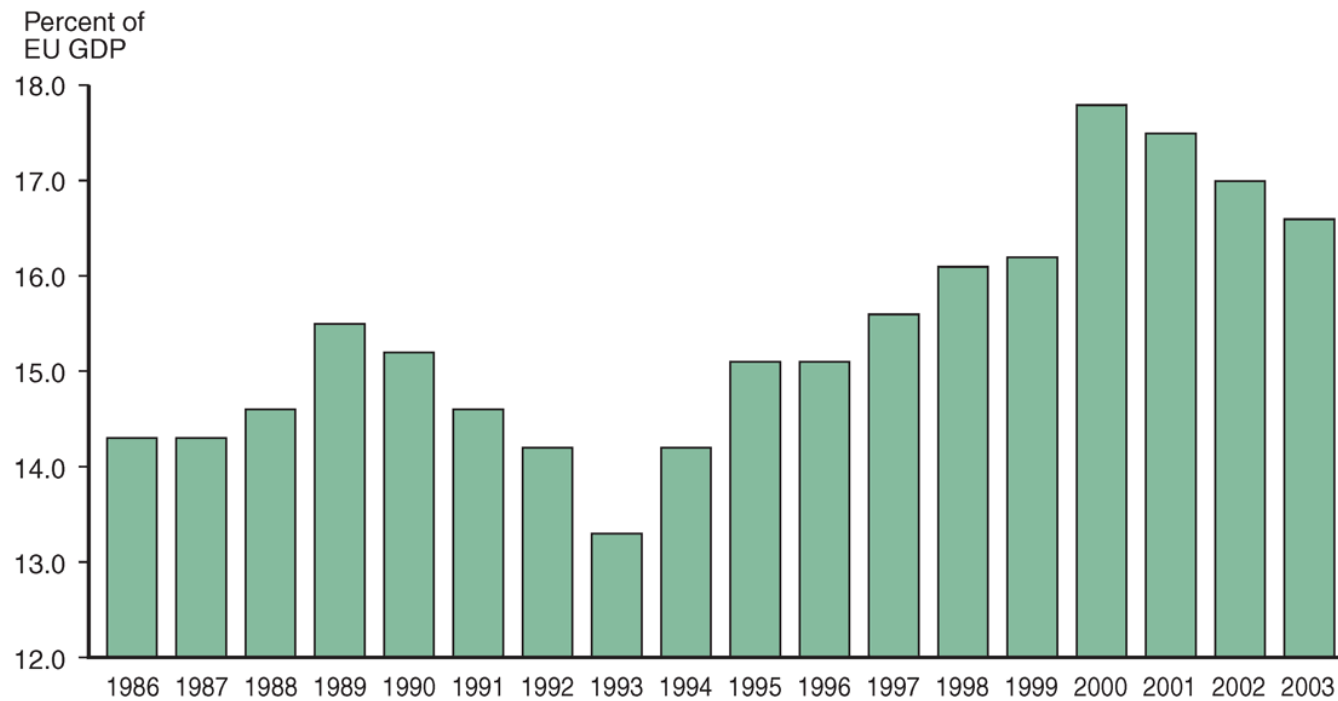Monetary efficiency gain for the joining country

GG

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

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

Source: *OECD Statistical Yearbook* and Eurostat.

Potential stabilisation policy costs of a common currency

- **Asymmetric (country specific) cyclical shocks versus symmetric (common) shocks**

- **A large frequency of asymmetric shocks imply large stabilization policy costs because exchange rate movements can then no longer function as automatic shock absorbers (cf the AA-DD analysis in Krugman-Obstfeld) and monetary policy can no longer be adjusted to the country-specific conditions**

- **A common monetary policy may also cause problems if different economies respond in different ways to common macroeconomic shocks or the common monetary policy**

- **Asymmetric recessionary shocks are an obvious problem**

- **But asymmetric booms are also a problem**
  - **Inflation adjusts only gradually and causes ultimately an "overshooting" of the real exchange rate (the real exchange rate appreciates too much in the end because of higher inflation at home than abroad)**
  - **"Walter's critique": expected future inflation reduces the real interest rate (the nominal interest rate less inflation) in a boom and therefore exacerbates the boom in the short run**
  - **interaction with house prices**

- **But a common currency also reduces the risks of pure exchange rate shocks**
  - **However, pure exchange rate shocks do not seem in the past to have caused large fluctuations in output and employment in most OECD economies**

- **exchange rate shocks can be offset through interest rate policy**
- **in general exchange rate shocks seem to be a smaller problem in OECD economies than asymmetric shocks in goods and labour markets**

Diagram 62 Bilaterala växelkurser
22-dagars glidande medelvärde

Kronor/Euro
Kronor/Dollar
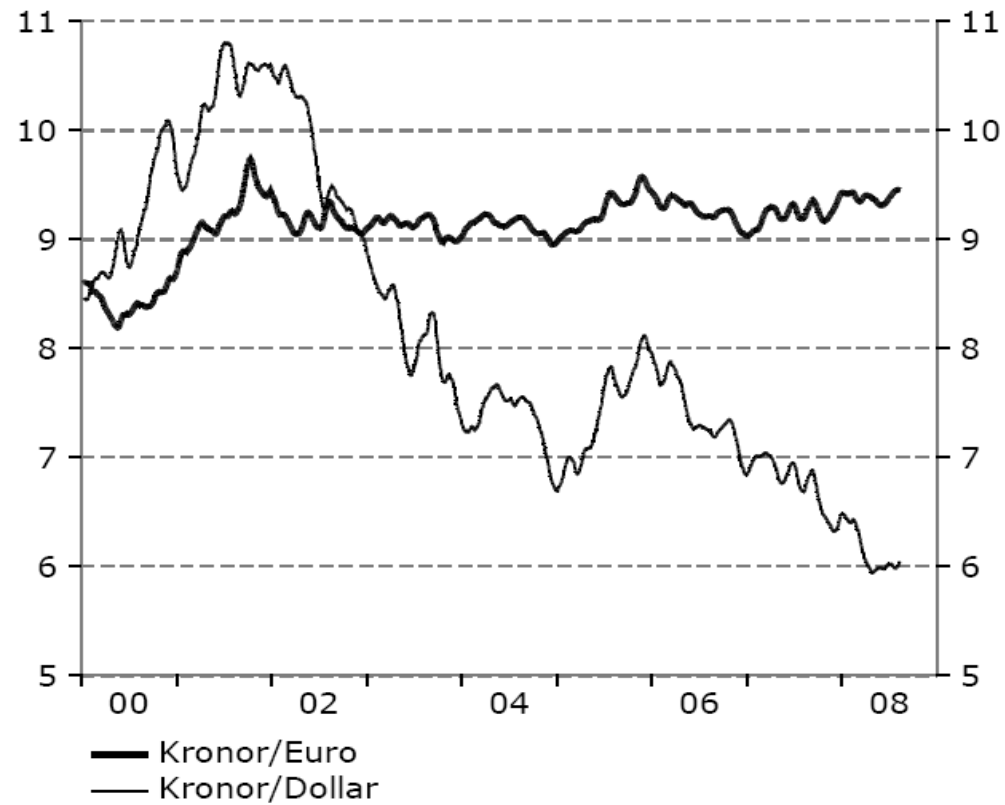
Källa: Reuters EcoWin.

TABLE 13 : Output gap relative to potential GDP (deviation of actual output from potential output as % of potential GDP, 1992-2009) [1]   15.04.2008

	5-year averages			2003	2004	2005	2006	2007		2008		2009	
	1992-96	1997-01	2002-06					X-2007	IV-2008	X-2007	IV-2008	X-2007	IV-2008
Belgium	-1.0	0.5	-0.1	-0.7	0.3	-0.3	0.1	-0.2	0.3	-0.5	-0.3	-0.7	-1.0
Germany	0.3	0.1	-1.1	-1.5	-1.6	-1.8	-0.3	0.3	0.7	0.6	0.9	0.9	0.8
Ireland	-3.2	2.5	0.8	1.3	-0.1	0.1	0.1	-0.7	0.2	-1.2	-1.4	-1.3	-2.0
Greece	-1.7	-1.1	0.9	0.7	1.4	1.3	1.3	1.3	1.5	1.2	1.1	1.2	0.7
Spain	-2.1	0.5	0.0	0.3	-0.2	-0.6	-0.5	-0.5	-0.4	-0.9	-1.2	-1.8	-2.1
France	-1.3	0.5	0.2	-0.2	0.3	0.0	0.1	-0.3	-0.2	-0.3	-0.5	-0.6	-0.8
Italy	-1.1	0.5	0.0	-0.2	0.0	-0.6	-0.3	-0.8	-0.3	-0.9	-1.0	-1.0	-1.6
Cyprus	:	0.4	-0.4	-0.2	-0.8	-1.3	-1.3	-1.1	-0.6	-0.8	-0.6	-0.6	-0.6
Luxembourg	-0.2	0.2	-0.5	-1.4	-0.7	-0.9	-0.3	0.0	0.3	-0.2	-0.5	-0.6	-1.3
Malta	:	2.0	-1.3	-1.4	-3.2	-2.1	-1.0	-0.6	-0.1	-0.1	0.0	0.5	0.0
Netherlands	-1.0	1.6	-1.4	-2.1	-1.6	-2.0	-1.1	-0.4	0.3	0.0	0.7	0.3	0.4
Austria	-0.2	0.7	-1.1	-1.7	-1.4	-1.4	-0.2	0.4	0.9	0.8	0.9	0.8	0.6
Portugal	-1.6	1.6	-0.9	-1.3	-1.3	-1.7	-1.6	-1.7	-1.1	-1.2	-1.0	-0.8	-1.0
Slovenia	:	0.4	-1.0	-1.8	-1.4	-1.3	0.2	0.9	1.4	0.8	0.9	0.3	0.2
Finland	-5.1	2.0	-0.9	-1.5	-1.1	-1.6	-0.2	0.4	0.8	0.5	0.3	0.1	-0.4
Euro area	-1.0	0.5	-0.4	-0.8	-0.6	-0.9	-0.2	-0.2	0.2	-0.1	-0.1	-0.2	-0.5
Bulgaria	:	-2.3	0.8	0.0	1.1	1.4	1.6	0.7	1.4	-0.1	0.8	-0.6	0.2
Czech Republic	:	-2.0	-1.7	-3.0	-2.6	-0.8	0.8	2.1	2.0	2.1	1.4	1.4	1.1
Denmark	-1.4	1.4	-0.4	-1.5	-1.0	-0.4	1.2	0.7	0.7	-0.2	-0.3	-0.9	-1.0
Estonia	:	-1.1	1.2	-0.6	-0.3	1.9	4.7	2.1	4.0	0.1	-0.5	-1.7	-2.9
Latvia	:	-0.5	0.2	-1.2	-0.8	0.5	3.2	2.7	4.8	0.8	1.0	-1.7	-3.5
Lithuania	:	-2.5	1.5	2.2	2.1	2.2	1.9	1.0	2.6	0.4	1.4	-0.6	-1.1
Hungary	:	-1.1	0.4	-0.6	0.4	1.0	1.8	0.1	0.2	-0.3	-0.8	0.0	-0.5
Poland	:	0.5	-0.4	-1.0	0.4	-0.4	0.6	0.9	1.2	0.4	0.5	-0.6	-0.7
Romania	:	-4.9	0.2	-2.0	1.7	1.1	3.4	2.1	3.0	1.3	2.6	0.3	1.2
Slovakia	:	-3.5	-2.9	-3.2	-3.4	-3.2	-1.6	1.0	1.9	1.3	2.7	0.8	2.5
Sweden	-3.3	-0.1	0.1	-1.2	0.1	0.6	1.5	0.6	0.6	0.8	0.3	0.5	-0.3
United Kingdom	-1.5	0.5	0.1	0.1	0.7	-0.1	0.0	-0.1	0.4	-0.4	-0.3	-0.6	-1.0
EU27	:	0.4	-0.3	-0.7	-0.3	-0.7	-0.1	-0.1	0.3	-0.1	-0.1	-0.3	-0.6

[1] When comparing output gaps between the spring and the autumn forecast it has to be taken into account that the overall revisions to the forecast may have led to changes in the estimates for potential output.

Fig. 20-8: Divergent Inflation in the Euro Zone

Twelve-month percent change in harmonized price index
(relative to three lowest inflation rates)
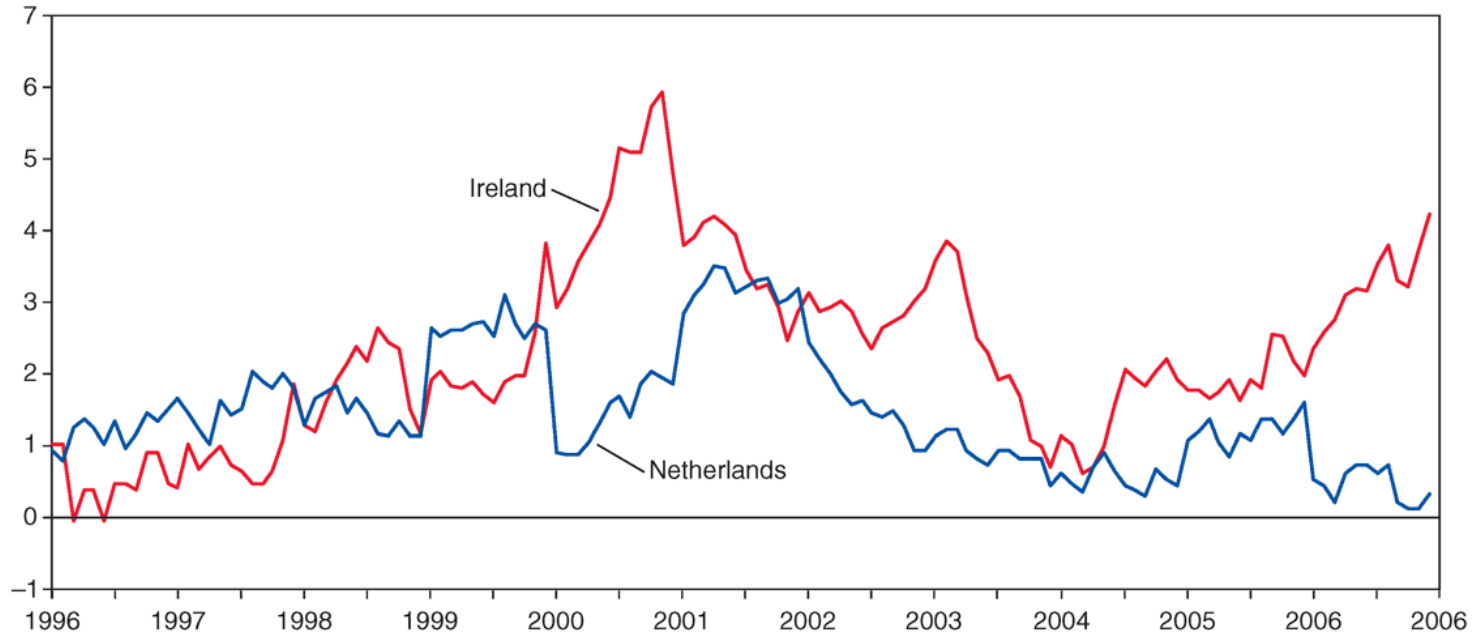
Factors that determine the magnitude of stabilisation policy costs of a common currency

- **Extent of trade**
  - **Rose & Frenkel: more trade means that cyclical shocks are transmitted among countries to a larger extent and increases the synchronisation of business cycles among countries: common shocks thus become more frequent**
  - **Krugman: more trade causes more specialisation and therefore imply less synchronisation of business cycles across countries if shocks are sector specific**
  - **much stronger empirical support for the first hypothesis**
- **How diversified is the economy?**
  - **a well diversified economy reduces the impact on the economy of sectoral shocks**
- **Mobility of labour between countries**
  - **unemployed in one country can move to a country with excess demand for labour**
  - **prime example: Ireland (but also the UK and Spain)**
  - **but immigration also raises demand (not least for housing, which tends to increase building activity)**
- **To what extent can the real exchange rate, q = EP*/P, change through relative price changes (in P/P*) instead of through nominal exchange rate changes (in E)?**
  - **the scope for relative price changes is determined by the flexibility of nominal wages**

- **in the case of an asymmetric recession nominal wages must fall relative to other eurozone countries if the real exchange rate is to depreciate**
- **small room to reduce the rate of nominal wage growth below that of other countries if there is low inflation (with 2 % inflation and 2 % productivity growth there will on average be 4 % nominal wage growth)**
- **strong resistance to reductions of the *nominal wage level***
- **adjustments through nominal wage restraint has worked in Germany but not in Italy**
- **product market reforms (deregulations) raising productivity growth can also be an adjustment mechanism helping to achieve a real depreciation**

- **Fiscal transfers from other EMU members**
  - **fiscal federalism**
  - **other "currency areas" (large countries like the US and Canada) have a large federal budget which works like an automatic stabiliser (20 – 40 % dampening of cyclical swings in output)**
  - **the EU budget (around 1.1 % of GDP) is too small to be an automatic stabiliser and its composition makes it unsuitable for that purpose (agricultural and regional support**
- **National fiscal policy instead of national monetary policy**

- **but fiscal policy is a less appropriate stabilisation policy tool (longer decision lags, distributional concerns in addition to stabilisation motives, risks of too large budget deficits)**
- **the stability pact (formally the Stability and Growth pact imposes restrictions on the use of fiscal policy as a stabilisation tool (budget deficit of maximum 3 % of GDP unless deep recession)**

Fig. 2.4

Migration Ireland
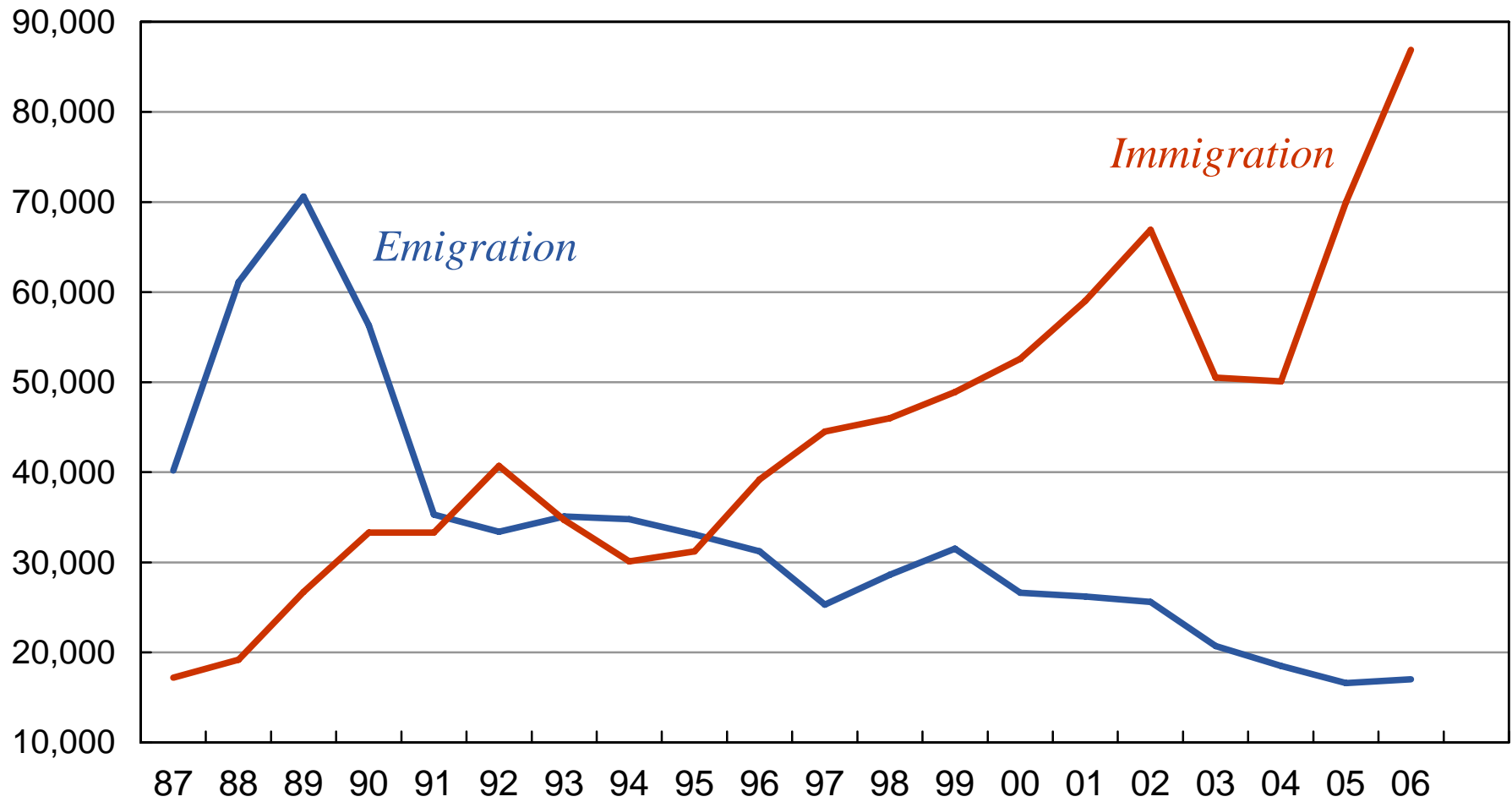
Source: Central Statistics Office Ireland (2006).

<u>ULC = Unit labour cost (wage cost per unit of output)</u>

- $\dfrac{WL}{Q} = \dfrac{W}{(Q/L)} =$ Nominal wage/Productivity

- **Percentage change of ULC = Percentage wage increase – Percentage increase of productivity**

- **Percentage rate of change of producer price level ≈ Percentage rate of change of ULC**

- **Relative unit labour cost = RULC = Own unit labour cost / unit labour cost in the rest of the world (among main competitor countries in world markets)**

$$q = \frac{EP^*}{P} \approx \frac{E \cdot ULC^*}{ULC}$$

Table 1.2

The development of various measures of wages and wage costs

	Compensation per employee[a]		Real compensation cost[b]		Labour productivity[c]		Unit labour cost[c]		Relative unit labour cost[d,c]		Export performance[f]	
	2004–06	2007	2004–06	2007	2004–06	2007	2004–06	2007	2004–06	2007	2000–06	2007
Austria	2.3	2.4	0.4	0.2	2.1	2.7	0.7	1.2	− 0.1	0.3	− 1.7	− 1.2
Belgium	2.2	2.7	− 0.1	0.7	1.5	0.9	0.9	1.7	0.5	0.9	− 3.6	− 0.3
Denmark	3.2	3.9	0.7	1.9	2.0	− 0.4	1.3	2.7	0.4	4.1	− 1.7	− 2.4
Finland	3.2	2.7	2.4	1.3	2.6	2.1	0.8	2.8	− 2.3	− 3.5	− 1.3	0.7
France	3.5	3.3	1.6	1.1	1.6	0.9	1.5	1.9	− 0.2	3.9	− 4.0	− 2.3
Germany	0.4	1.3	− 0.4	− 0.5	1.2	1.0	− 1.0	1.1	− 2.7	− 2.8	1.0	1.9
Greece	3.6	6.1	0.3	3.2	2.0	2.4	3.2	4.1	5.2	4.8	− 3.6	− 0.7
Ireland	5.2	4.4	2.8	2.3	1.2	2.1	5.0	3.5	1.8	3.2	− 2.2	3.3
Italy	2.6	2.1	0.3	− 0.5	0.2	0.5	3.2	2.9	3.4	2.1	− 6.1	− 4.6
Luxembourg	4.2	3.5	0.1	0.5	2.3	1.2	1.9	1.4	2.3	− 0.8	1.0	0.5
Netherlands	2.2	2.6	0.6	1.2	1.8	1.4	0.1	2.6	− 0.7	1.7	− 1.0	0.9
Portugal	2.1	3.2	− 0.6	0.4	0.8	1.9	2.4	1.5	− 0.9	− 2.1	− 3.2	1.0
Spain	1.6	2.3	− 2.5	− 1.0	− 0.2	0.4	2.7	3.2	2.4	2.1	− 3.6	− 0.5
Euro area	1.6	2.4	− 0.4	0.2	0.8	1.0	1.1	2.1	0.7	2.1	na	na
Czech Republic	5.6	7.6	3.7	4.1	4.8	4.5	1.1	2.9	− 1.3	− 0.6	5.7	3.6
Hungary	8.9	7.6	5.5	1.8	4.3	1.7	3.9	4.0	0.7	9.9	5.8	7.5
Japan	− 0.2	0.0	0.9	0.6	1.9	1.5	− 1.6	− 0.9	− 7.1	− 9.0	0.2	1.6
Poland	1.3	8.1	− 1.5	4.6	2.7	1.9	0.8	5.3	1.5	0.4	1.6	− 0.5
Slovakia	7.1	7.1	3.4	5.7	5.4	7.1	0.6	1.1	− 1.8	6.5	3.5	6.9
Sweden	3.1	4.7	2.0	1.6	3.1	0.8	− 0.2	2.6	− 4.0	4.2	− 0.3	− 1.1
UK	4.2	3.6	1.7	0.4	1.7	2.6	2.7	0.7	4.6	2.2	− 0.7	− 10.1
US	3.9	5.0	0.9	2.4	1.7	1.1	2.4	2.2	− 5.5	− 6.1	− 1.0	1.3

Notes: All figures are annual percentage changes. [a] Compensation per employee in the private sector. – [b] Compensation per employee deflated by GDP deflator. – [c] Total economy. – [d] Manufacturing sector. – [e] Competitiveness-weighted relative unit labour cost in dollar terms. – [f] Percentage change in the ratio between export volumes and export markets for total goods and services. A positive number indicates gains in market shares and a negative number indicates a loss in market shares.

Source: OECD Economic Outlook database.

Fig. 2.2
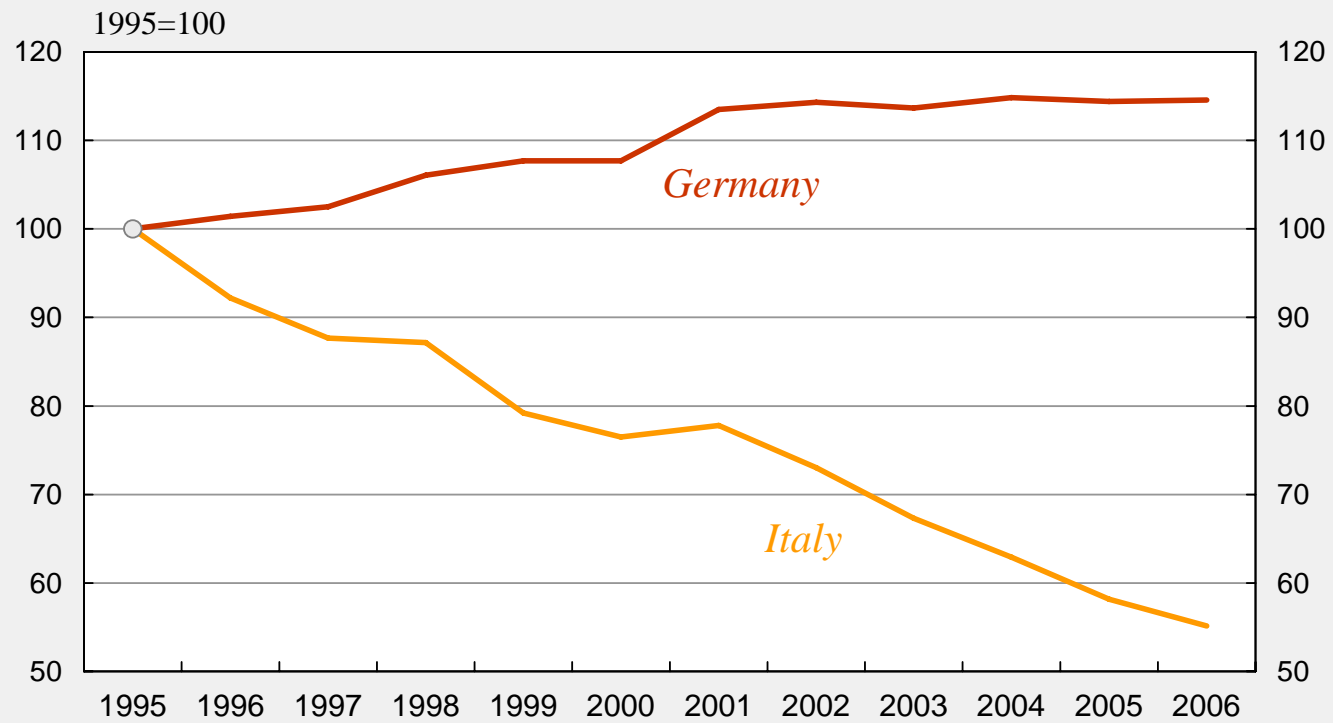
Real effective exchange rates versus EU15 members

Index, 1999=100

Ireland
Portugal
Italy
Spain
United Kingdom
France
Germany
Netherlands
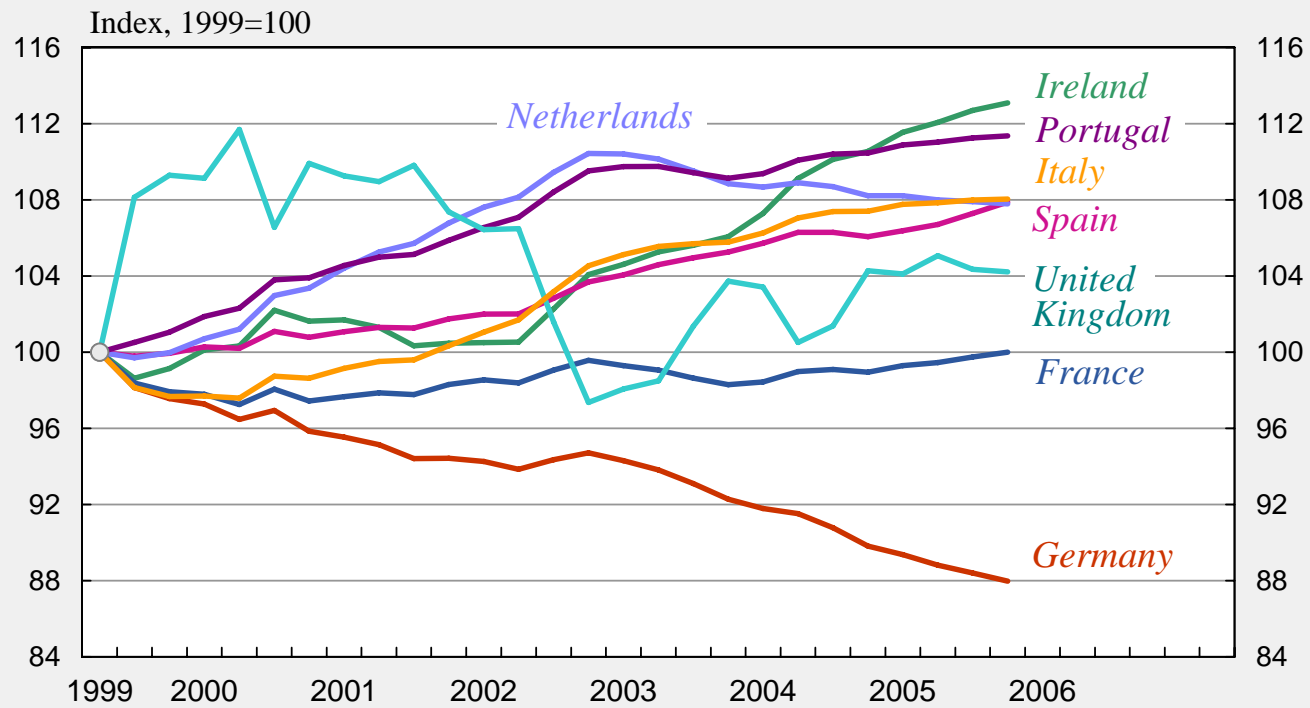
Note: Real effective exchange rate is defined as relative unit labour cost.

Source: Eurostat (2006).

EEAG Report 2007

Fig. 2.5

Share in world merchandise exports in volume terms

1995=100

Germany

Italy

Source: Banca d'Italia (2006b).

EEAG Report 2007

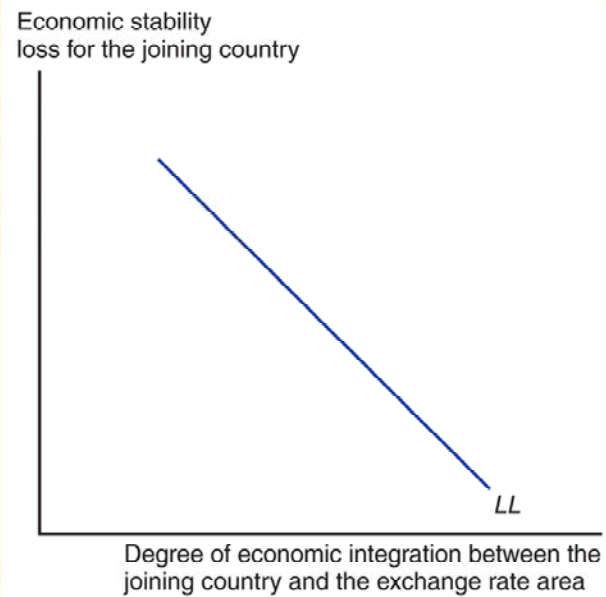**More integration tends to reduce the stabilisation policy cost**

- **Larger labour mobility**

- **With a larger volume of trade, a given effect on domestic GDP can be achieved via a smaller change in the real exchange rate**

- **Larger trade means that a nominal exchange rate depreciation is a less efficient means of depreciating the real exchange rate:**

  - **if imports have a large weight in the CPI, the import price rises following from a nominal depreciation cause large rises in the CPI and are likely to trigger large compensating wage increases that increase domestic producer prices: if so a nominal depreciation has only a small effect on the real exchange rate**

  - $q = EP^*/P$. **Both** $E\uparrow$ **and** $P\uparrow$.

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.

Economic stability loss for the joining country

LL

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

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.
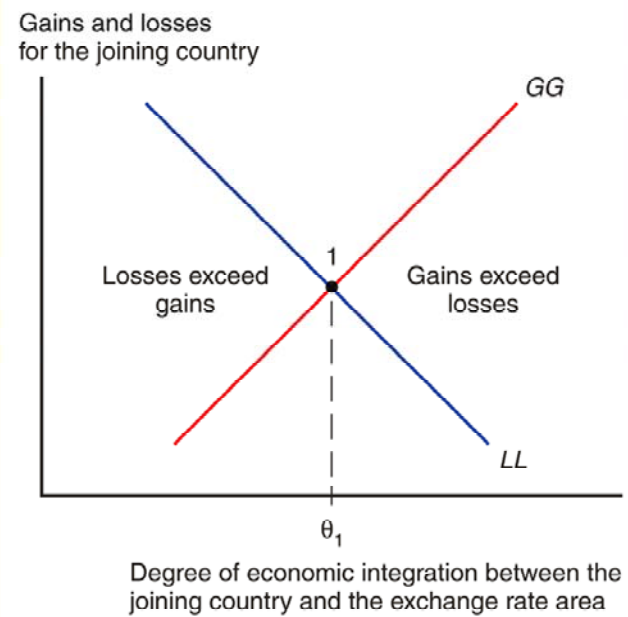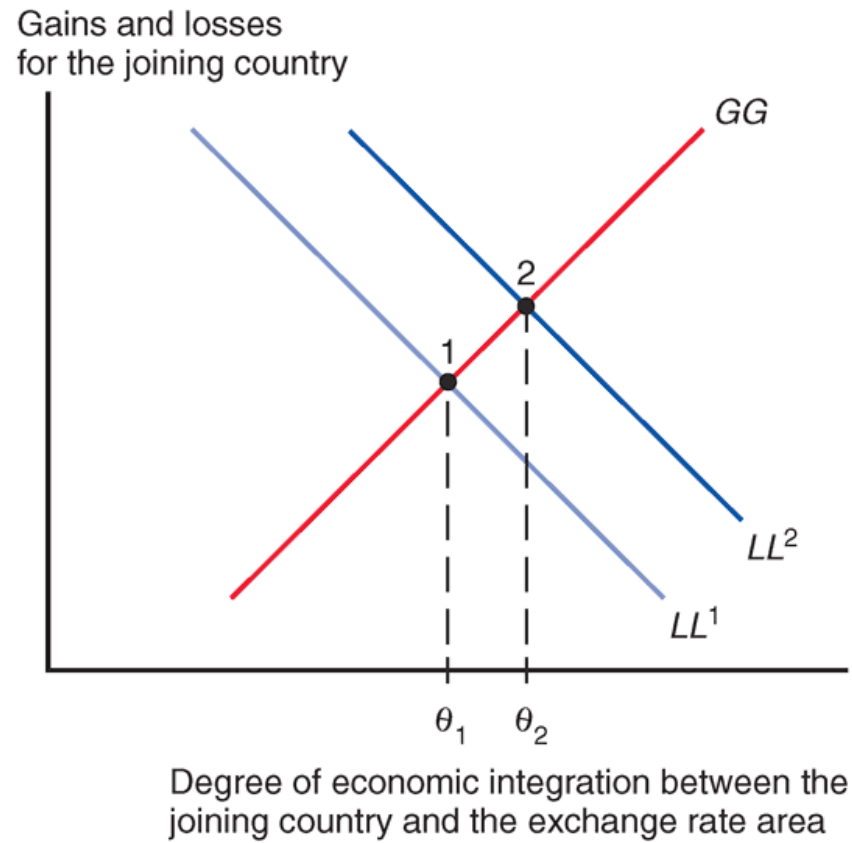
Gains and losses for the joining country

GG

1

Losses exceed gains

Gains exceed losses

LL

θ_1

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

Fig. 20-6: An Increase in Output Market Variability

Gains and losses for the joining country

GG

2

1

LL^2

LL^1

θ_1 θ_2

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

Greater benefits from adopting the euro for the new EU countries than for Sweden and the UK

- Growth considerations are more important than stabilisation considerations

- Larger labour market flexibility reduces the need for an own monetary policy
  - higher nominal wage growth means larger possibilities to reduce
    relative unit labour costs and achieve a real depreciation this way
    (smaller probability that downward nominal wage rigidity will bite)
  - weaker trade unions and less coverage of collective agreements
  - larger migration flows that can be affected by cyclical conditions

- Current situation implies large risks of financial turbulence
  - typical "emerging markets"
  - the largest risk is for ERM-2 countries, smaller risks for those with floating
    rates (Poland, Czech Republic, Hungary)
  - risks of "capital flow reversals"
  - large and sudden exchange rate depreciations – increased value in domestic
    currency of loans in foreign currency
    "currency mismatch", insolvency and bankruptcies

- Larger need to establish credibility for low inflation

Box 3.1

Criteria for EMU entry

- The deficit of the general government must be below three percent of GDP. Gross debt of the general government must be below 60 percent of GDP or declining toward 60 percent of GDP at a satisfactory rate.
- Inflation must not exceed the average rate of inflation in the three EU countries with the lowest inflation rate by more than 1.5 percentage points.
- The long-term interest rate must not exceed the average rate in the three EU countries with the lowest interest rate by more than two percentage points.
- Two years of participation in the Exchange Rate Mechanism II (ERM II)[a] without major tensions in the foreign exchange market are required.

[a] ERM II replaced the earlier ERM when the euro was introduced. It is a multilateral exchange rate arrangement with a fixed, but adjustable, central parity for the exchange rate of the currency of a member country to the euro and a fluctuation band around the parity.

Inflation criterion for EMU membership

- Inflation must not exceed inflation in the three EU countries with the lowest inflation by more than 1.5 percentage points
- Rapidly growing countries have higher growth (Balassa-Samuelson effect)
- High productivity growth in the sector producing "tradables" (manufacturing)
- High wage increases there spread to sector producing "non-tradables" (services) where productivity growth is lower
- Higher price increases for "non-tradables" and thus for the CPI: 1-2,5 percentage points
- This may force EMU entrants to adopt unnecessarily restrictive fiscal policies raising unemployment
- Strong argument for reformulating the inflation criterion: Balassa-Samuelson rebate
- But currently the Baltic economies are overheated

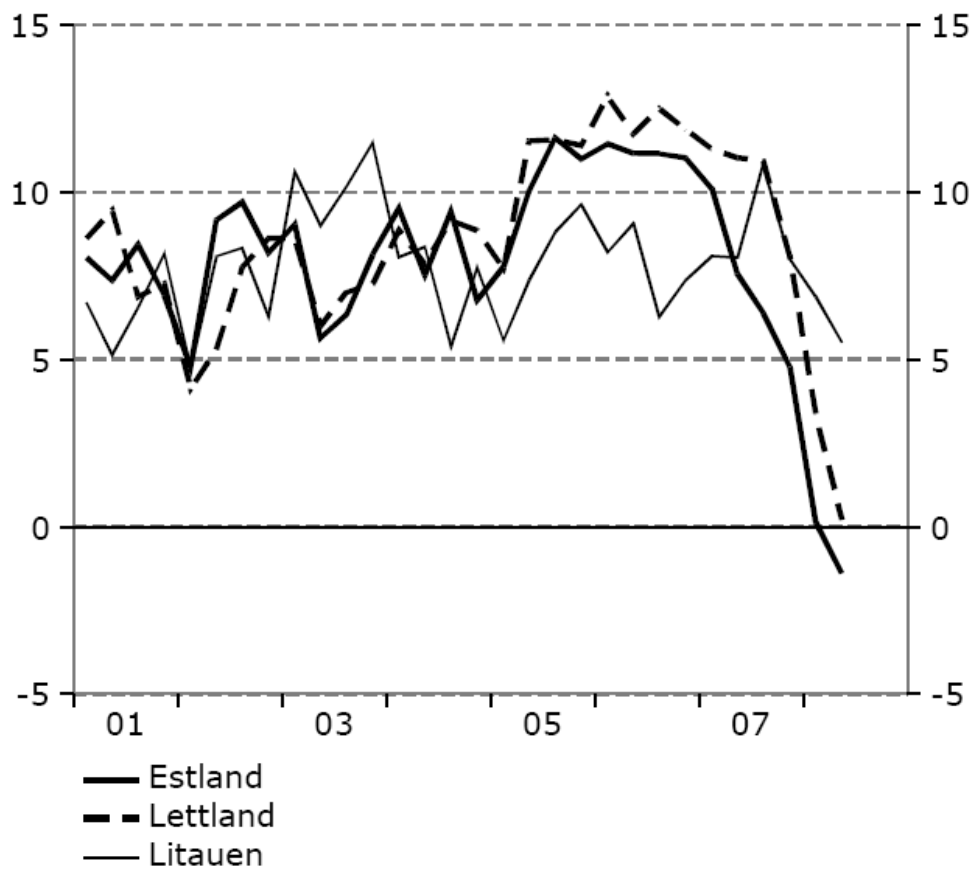## Diagram 49 Harmoniserat index för konsumentpriser i Baltikum

Årlig procentuell förändring

Estland
Lettland
Litauen

Källa: Reuters EcoWin.

Diagram 48 BNP-tillväxt i Baltikum
Årlig procentuell förändring

Estland
Lettland
Litauen

Källor: Reuters EcoWin och ländernas centralbanker.