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Chapter 16

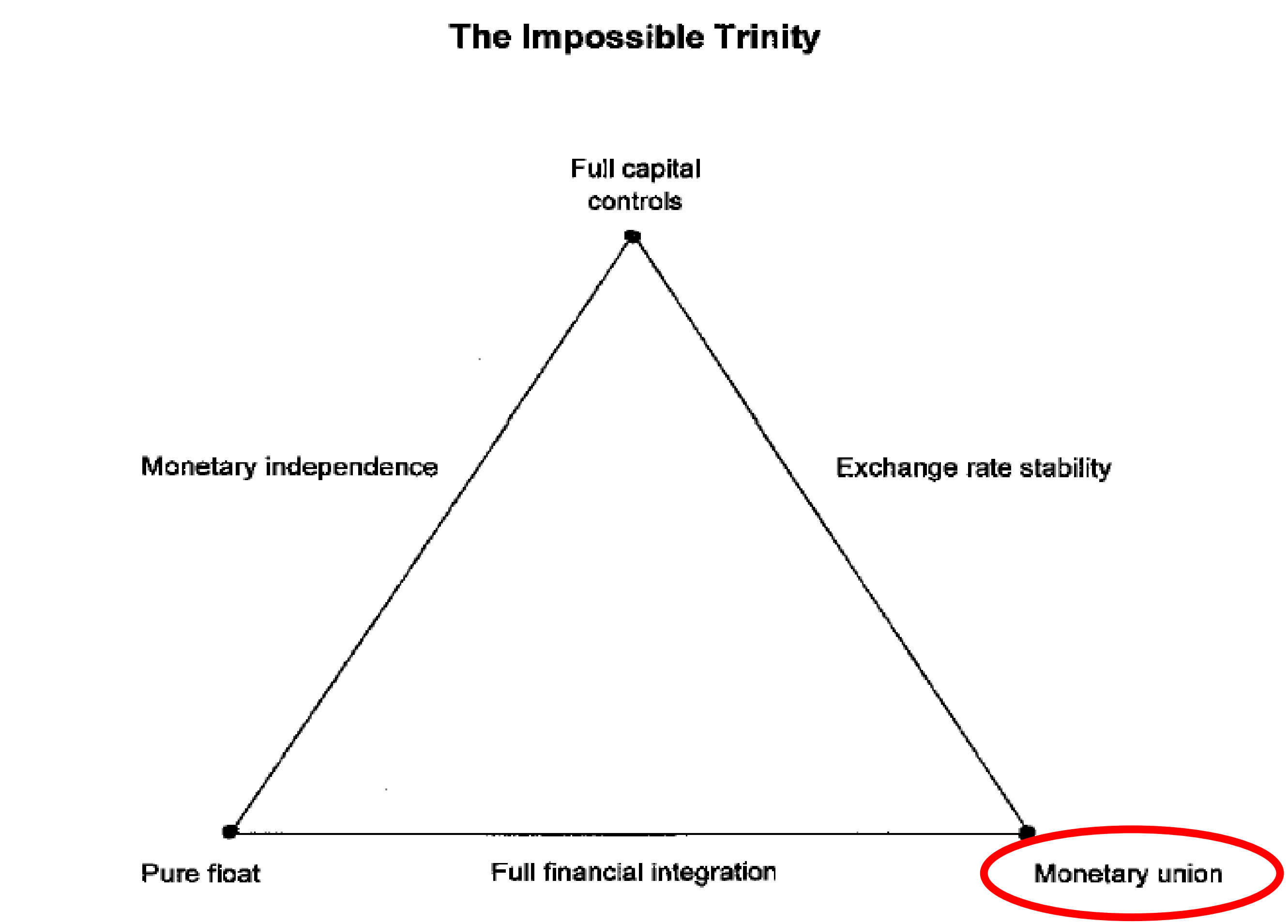
The European monetary union

The Economics of European Integration, Sixth Edition

The Maastricht Treaty

- European Monetary Union is the outcome of a deal between sovereign European countries.
- Principles (mainly on German requests):
  - price stability;
  - central bank independence;
  - fiscal discipline.
- The Maastricht Treaty included:
  - a firm commitment to launch the single currency by January 1999 at the latest;
  - five explicit criteria for admission to the monetary union;
  - a precise specification of central banking institutions;
  - additional conditions mentioned (e.g. the excessive deficit procedure).

The impossible trinity

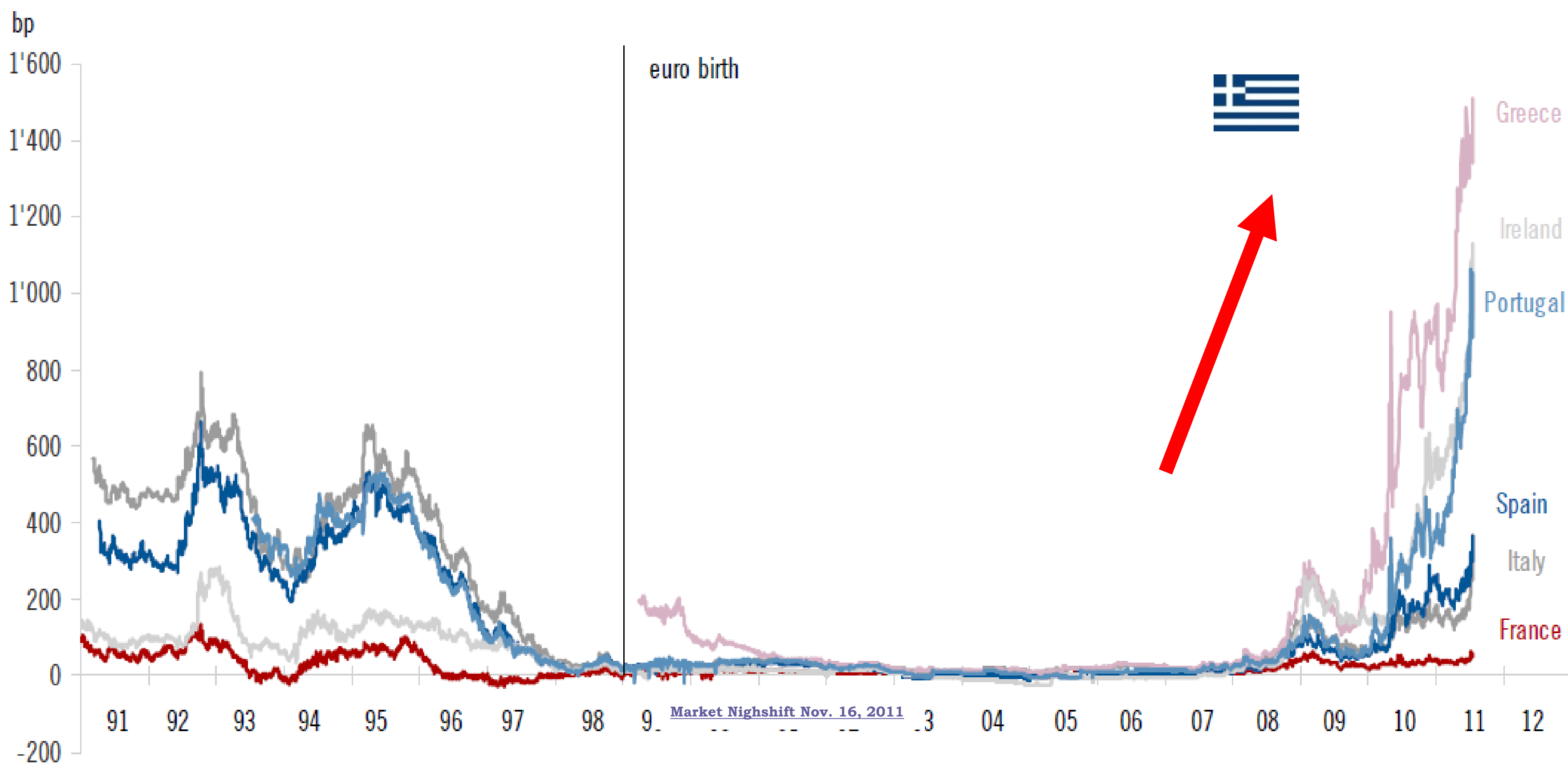


Absolute PPP

$$R = \frac{S\,P^*}{P} = 1 \quad \text{or} \quad S = \frac{P}{P^*}$$

i = i*+ svalut attesa + premio rischio paese

Euro area: Sovereign spreads vs. 10Y Bunds



Source: AA&MR, Datastream

Teoria Quantitativa della Moneta

The Cambridge equation is:

$$M \times V = P \times Y$$

V = velocity, P = the price level

Y = the quantity of (real) output

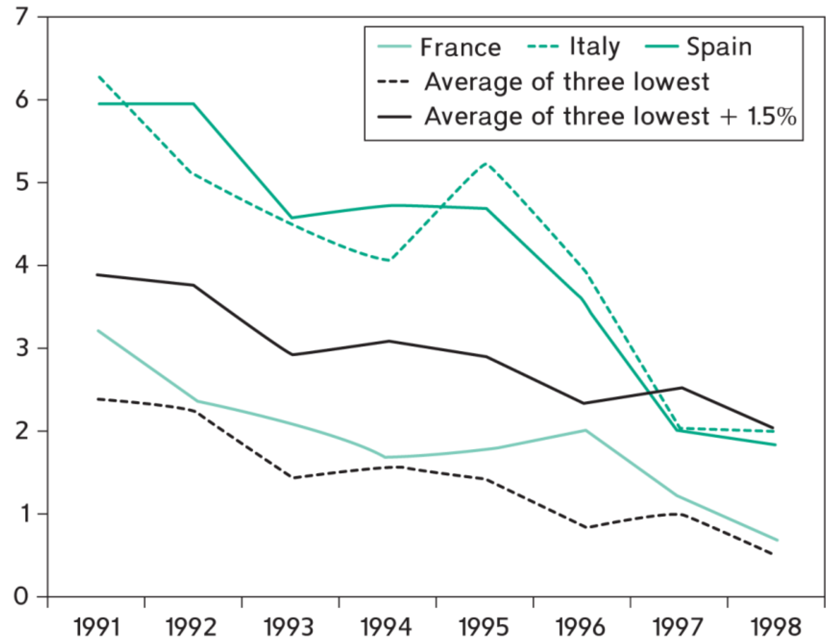
M = the quantity of money

The Maastricht Treaty: five entry conditions

Purpose: A selection process to certify which countries have adopted a 'culture of price stability' (i.e., German-style low inflation); countries have to fulfill five convergence criteria.

1. Inflation: *Not to exceed by more than 1.5 percentage points the average of the 3 lowest inflation rates among EU countries*.

Figure 16.1 Inflation convergence, 1991–98

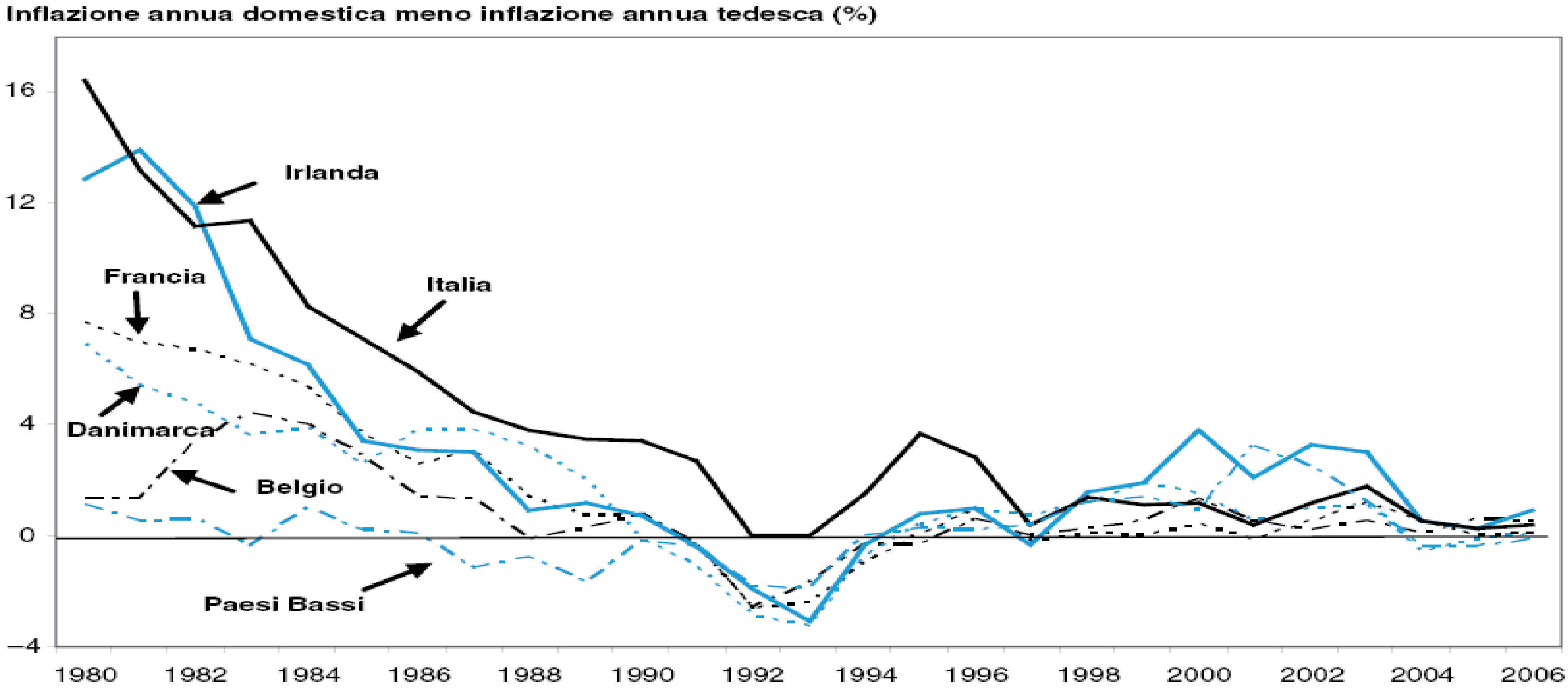


Source: Based on data from IMF.

tassi di inflazione tra i membri SME,1978–2000

FIGURA 10.2

Convergenza dei tassi di inflazione in sei dei paesi fondatori dello SME, 1980–2006.
Nel grafico si riportano i differenziali di inflazione rispetto alla Germania per sei dei paesi fondatori dello SME: Belgio, Danimarca, Francia, Irlanda, Italia e Paesi Bassi.



Fonte: FMI, WEO Database. I tassi di inflazione sono relativi agli indici dei prezzi al consumo (IPC).

The Maastricht Treaty: five entry conditions

2. Long-term nominal interest rate: Not to exceed the average interest rate in the 3 lowest inflation countries by more than 2 percentage points (→ long-term interest rates mostly reflect markets' assessment of long-term inflation).

3. ERM membership: At least 2 years in ERM without being forced to devalue.

4. Budget deficit: Deficit less than 3% of GDP.

5. Public debt: Debt less than 60% of GDP (= average of countries at that time).

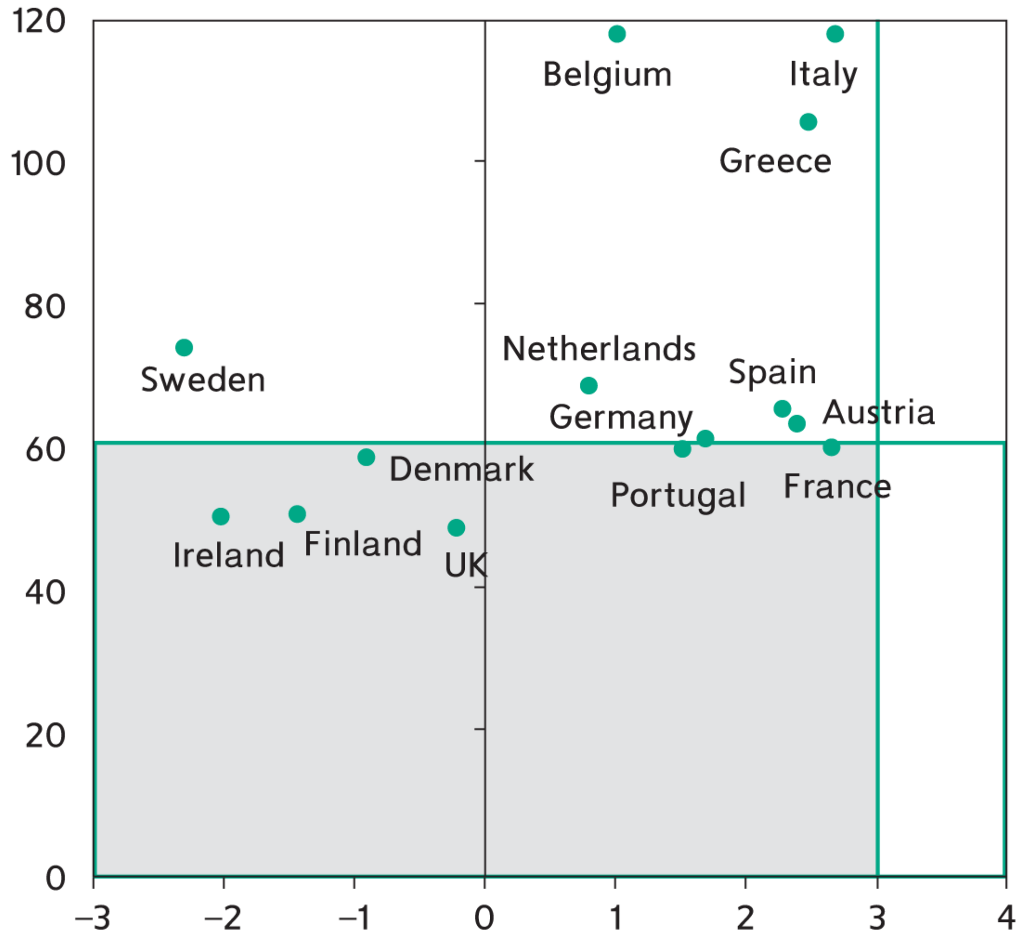
→ Maastricht Treaty specifies that all countries are expected to join as soon as they fulfill the criteria.

→ Only Denmark and UK were given an exemption (opt out clause).

→ Sweden does not have an exemption, but acts as if it is not member of the ERM II.

The Maastricht Treaty: five entry conditions

Figure 16.2 Deficits and debts, 1998



Source: AMECO, European Commission

Debt &Deficit Criteria

Debts grow out of deficits, but how does the debt/GDP ratio relate to the deficit/GDP ratio? A little arithmetic helps. If total nominal debt at the end of year t is Bt, its increase during the year is $B_t - B_{t-1}$, and this is equal to the annual deficit D_t:

$$B_t - B_{t-1} = D_t \tag{1}$$

The two fiscal convergence criteria refer not to the debt and deficit levels, but to their ratios to nominal GDP Y, denoted as b_t and d_t, respectively. Divide the previous accounting equality by the current year GDP to get:

$$\frac{B_t - B_{t-1}}{Y_t} = \frac{D_t}{Y_t} \quad \text{or} \quad b_t - \frac{B_{t-1}}{Y_t} = d_t \tag{2}$$

Then note that

$$\frac{B_{t-1}}{Y_t} = \frac{B_{t-1}}{Y_{t-1}}\frac{Y_{t-1}}{Y_t} = \frac{b_{t-1}}{1+g_t}$$

where

$$g_t = \frac{Y_t - Y_{t-1}}{Y_{t-1}} = \frac{Y_t}{Y_{t-1}} - 1$$

is the growth rate of GDP in year t. We can rewrite the debt growth eqn (2) as:

$$b_t - b_{t-1} = (1+g_t)d_t - g_t b_t \tag{3}$$

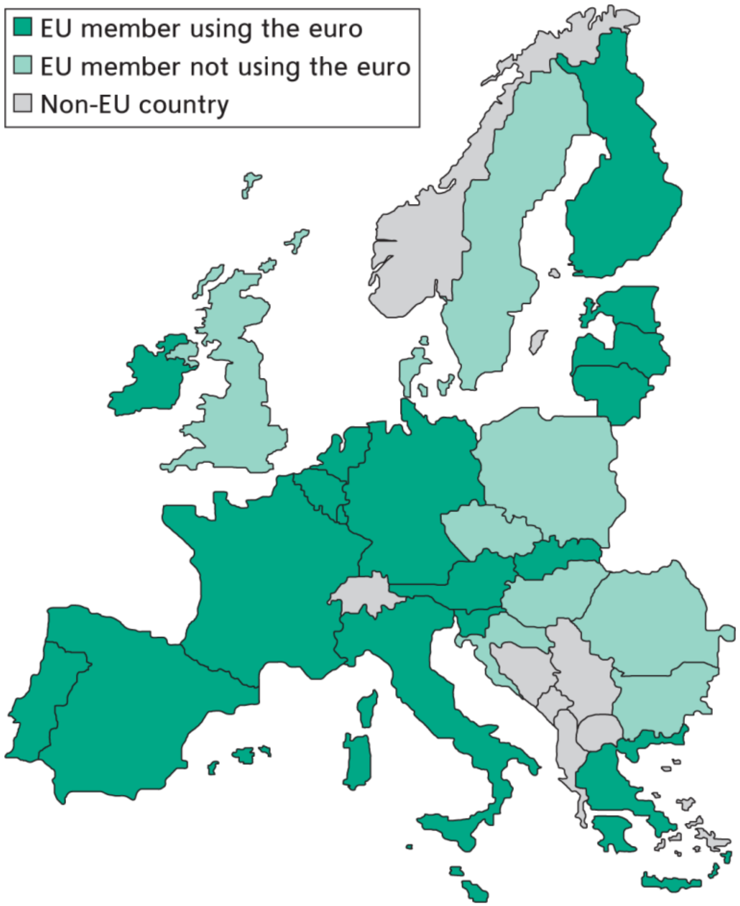
If the debt-to-GDP ratio b is to remain constant, we need to have $b_t = b_{t-1}$, which from eqn (3) implies:

$$d_t = \frac{g_t}{1+g_t} b_t \tag{4}$$

Two-speed Europe

The ‘two-speed’ arrangement is not without problems: the endogeneity of the OCA criteria suggests that the Eurozone countries are becoming increasingly cohesive.

Figure 16.3 The Eurozone inside the EU (2018)



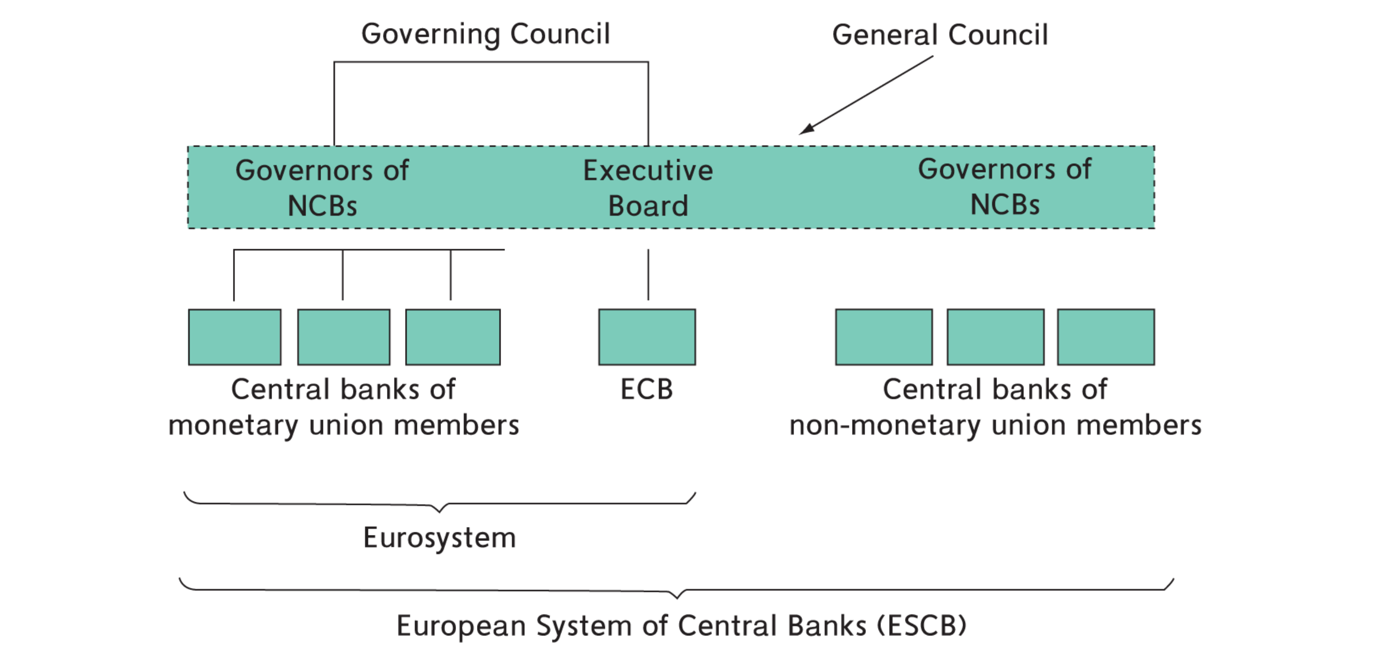
Source: © European Central Bank, Frankfurt am Main, Germany.

DECISION-MAKING BODIES OF THE ECB

The Eurosystem

- N countries with N National Central Banks (NCBs) and a new central bank at the center: the European Central Bank (ECB).
- The European System of Central Banks (ESCB): the ECB and all EU NCBs.
- The Eurosystem: the ECB and the NCBs of euro area member countries.

Figure 16.4 The European system of central banks



Source: Based on data from the European Central Bank.

BASIC TASKS OF THE ECB AND THE EUROSYSTEM

ORGANISATION

To define and implement
monetary policy

To conduct foreign
exchange operations

To promote the smooth operation
of **payment systems**

To hold and manage the official
foreign reserves
of the participating EU Member States

PRICE STABILITY – OBJECTIVE OF THE EUROSYSTEM

Article 127 of the Treaty on the Functioning of the European Union:

"1. The primary objective of the ESCB [Eurosystem] shall be to maintain price stability.

Without prejudice to the objective of price stability, the ESCB [Eurosystem] shall support the general economic policies in the Union with a view to contributing to the achievement of the objectives of the Union as laid down in Article 3 of the Treaty on European Union."

Central Banks’ Primary Objectives: a comparison

ECB: Primary Objective

“The primary objective of the ESCB shall be to maintain price stability. Without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Union with a view to contributing to the objectives of the Union”

[Article 127 Treaty on the Functioning of the European Union]

Banco de México: Primary Objective

BANCO DE MEXICO

“… [the Central Bank’s] main goal will be to foster the stability of the national currency’s purchasing power, therefore strengthening the State’s role in guiding the country’s development.”

[Article 28 of the Constitution of the Mexican United States]

US Federal Reserve: Dual Mandate

“Maintain the growth of monetary and credit aggregates commensurate with the economy’s long-run potential to increase production, so as to promote effectively the goals of maximum employment, stable prices and moderate long-term interest rates”

[Full Employment and Balanced Growth Act, 1978]

PRICE STABILITY – DEFINITION

Governing Council in October 1998:

"Price stability shall be defined as a year-on-year increase in the Harmonised Index of Consumer Prices (HICP) for the euro area of below 2%.
Price stability is to be maintained over the medium term."

The Governing Council aims to maintain inflation rates at levels below, but close to, 2% over the medium term.

BENEFITS OF PRICE STABILITY

Price stability contributes to

- Recognising changes in relative prices
- Avoiding "inflation risk premium"
- The productive use of resources
- Reducing the distortionary impact of tax and social security systems
- Maintaining social cohesion and stability
- Financial stability

OTHER TASKS OF THE ECB AND THE EUROSYSTEM

Advisory functions

Collection and compilation of **statistics**

Banking supervision

as of November 2014

International cooperation

Issuance of **banknotes**

Contribution to prudential **supervision** and **financial stability**

THE EUROPEAN SYSTEM OF CENTRAL BANKS (ESCB)

ORGANISATION

€ European Central Bank

1 Nationale Bank van België/ Banque Nationale de Belgique

2 Българска народна банка (Bulgarian National Bank)

3 Česká národní banka

4 Danmarks Nationalba

5 Deutsche Bundesbank

6 Eesti Pank

7 Central Bank of Irela

8 Bank of Greece

9 Banco de España

10 Banque de France

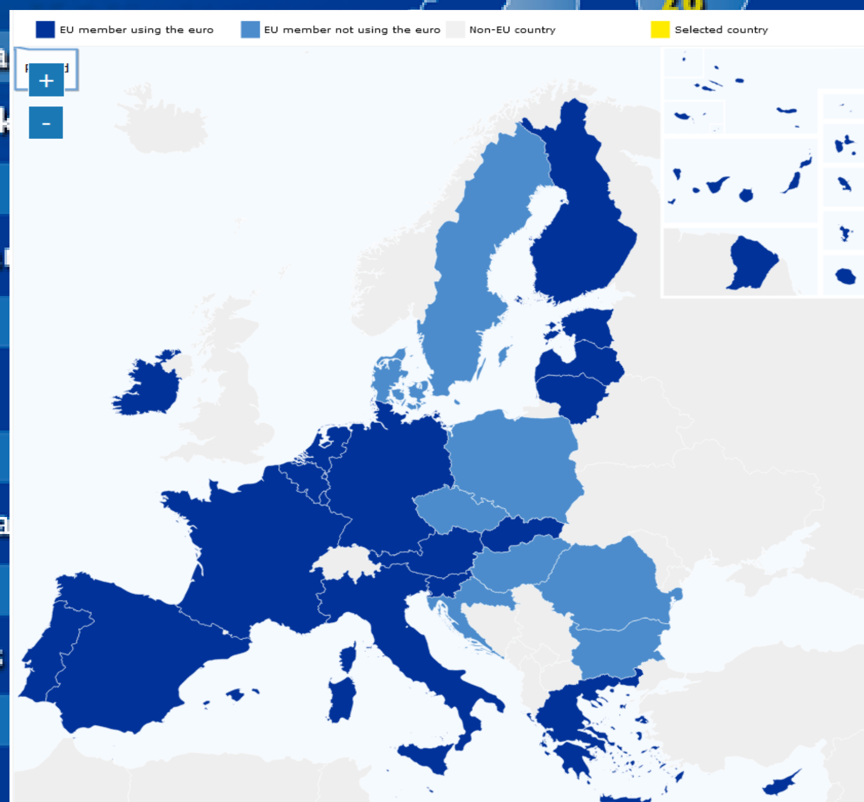
11 Hrvatska narodna banka

12 Banca d'Italia

13 Central Bank of Cyprus

14 Latvijas Banka

15 Lietuvos bankas



16 Banque centrale du Luxembourg

17 Magyar Nemzeti Bank

18 Bank Ċentrali ta' Malta/ Central Bank of Malta

19 De Nederlandsche Bank

20 Oesterreichische Nationalbank

21 Narodowy Bank Polski

22 Banco de Portugal

23 Banca Naţională a României

24 Banka Slovenije

25 Národná banka Slovenska

26 Suomen Pankki – Finlands Bank

27 Sveriges Riksbank

28 Bank of England

THE EUROSYSTEM

ORGANISATION

- € European Central Bank
- 1 Nationale Bank van België/ Banque Nationale de Belgique
- 2 Deutsche Bundesbank
- 3 Eesti Pank
- 4 Central Bank of Ireland
- 5 Bank of Greece
- 6 Banco de España
- 7 Banque de France
- 8 Banca d'Italia
- 9 Central Bank of Cyprus
- 10 Latvijas Banka
- 11 Banque centrale du Luxembourg
- 12 Central Bank of Malta
- 13 De Nederlandsche Bank
- 14 Oesterreichische Nationalbank
- 15 Banco de Portugal
- 16 Banka Slovenije
- 17 Národná banka Slovenska
- 18 Suomen Pankki – Finlands Bank

THE EUROSYSTEM

ORGANISATION

Members of the European Union not using the euro

Country	Joined the EU
Bulgaria	2007
Croatia	2013
Czech Republic	2004
Denmark	1973
Hungary	2004
Poland	2004
Romania	2007
Sweden	1995

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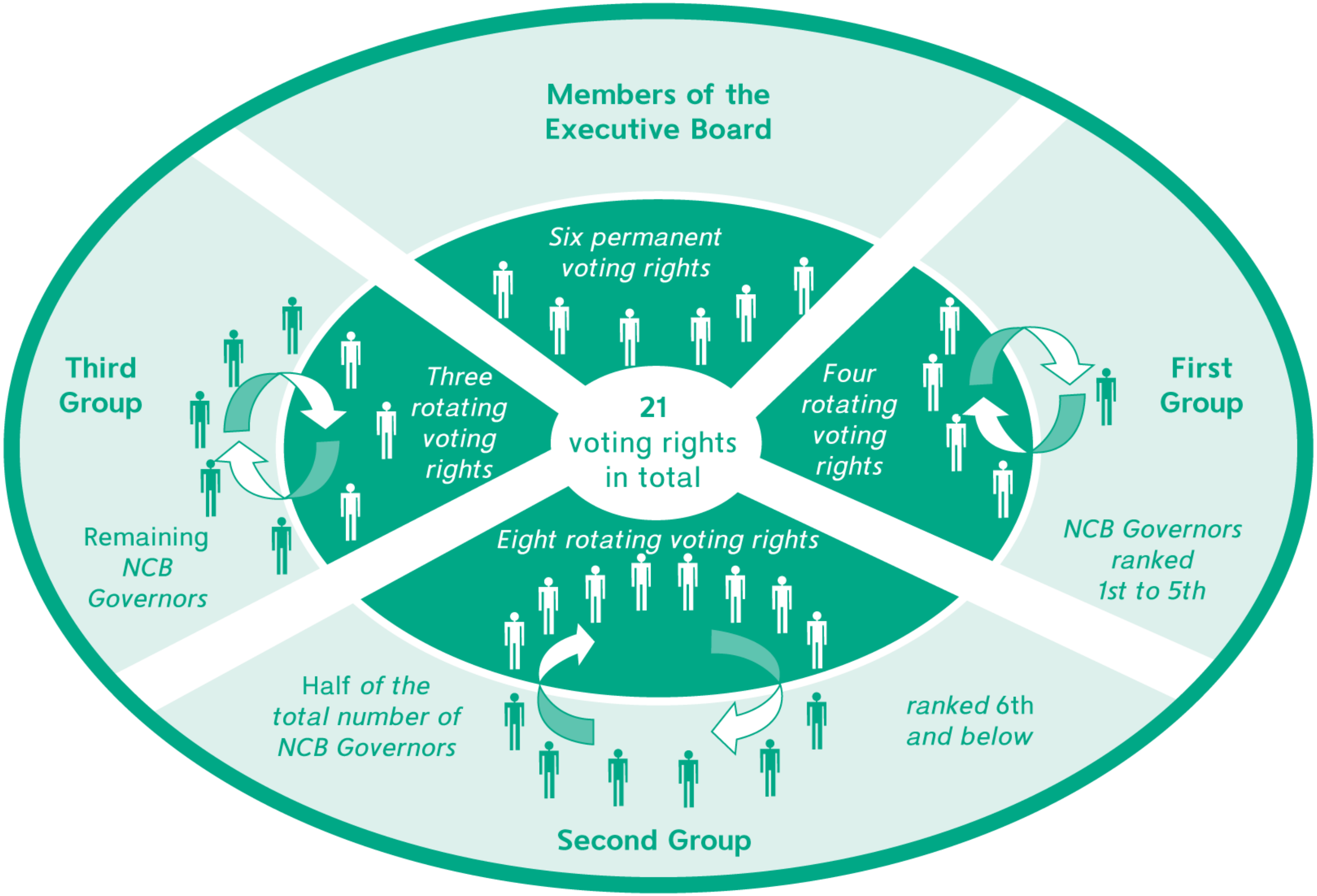
The rotating voting system for Governing Council

- Reason for rotation (in place since 2015): Even with potentially all EU countries in the EMU, the votes should be limited to 21 (follows from Maastricht logic with EU15 at that time and 6 ECB board members).
- An index is computed for each country:
  - based on its GDP (5/6 of the weight);
  - and the size of its financial sector (remaining 1/6).
- The resulting ranking classifies all countries into two groups:
  - The five largest countries (Germany, France, Italy, Spain, and the Netherlands) form the first group, with four voting rights.
  - The remaining countries make up the second group, with 11 voting rights.
    - Currently this second group is a merger of the second and the third group in the chart below (as well as Figure 16.6 in the textbook).
    - The third group will split up one point in the future, when the size of the EMU increases further.

The rotating voting system (since 2015)

Figure 16.6 The rotation system



Source: © European Central Bank, Frankfurt am Main, Germany, *Monthly Bulletin*, May 2003, p. 80.

ECB‘s monetary policy strategy: objectives

Treaty:

‘The primary objective of the ESCB shall be to maintain price stability. Without prejudice to that objective, it shall support the general economic policies in the Union in order to contribute to the achievement of the latter’s objectives.’

→ Eurosystem has chosen to interpret it as follows: ‘Price stability is defined as a year-on-year increase in the Harmonized Index of Consumer Prices (HICP) for the Eurozone of below but close to two per cent.’

→ Price stability is to be maintained over the medium term.

→ This is commonly understood as inflation between 1.5 and 2% and to refer to a 2–3 year horizon.

ECB‘s monetary policy strategy

Strategy relies on three main elements:

Definition of price stability as the primary goal: ‘change in HICP below but close to two per cent’;

and two ‘pillars’ to identify risks to price stability:

First pillar = **‘economic analysis’** (short- to medium-term perspective):

It consists of a broad review of recent evolution and likely prospects of economic conditions (e.g., growth, employment, prices, exchange rates, foreign conditions etc.).

Second pillar = **‘monetary analysis’** (medium- to long-term perspective):

It studies the evolution of monetary aggregates (M3, in particular) and credit.

THE ECB'S MONETARY POLICY STRATEGY

Primary objective: price stability

Governing Council
takes monetary policy decisions
based on an overall assessment
of the risks to price stability

Economic Analysis		Monetary Analysis
Analysis of economic dynamics and shocks	← cross-checking →	Analysis of monetary trends

↑ ↑

Full set of information

MONETARY POLICY STRATEGY – ECONOMIC ANALYSIS

Analysis of a broad range of economic/financial developments

Supply

Demand

Goods, services, factor markets

to assess

Economic shocks

Dynamics

Perspectives

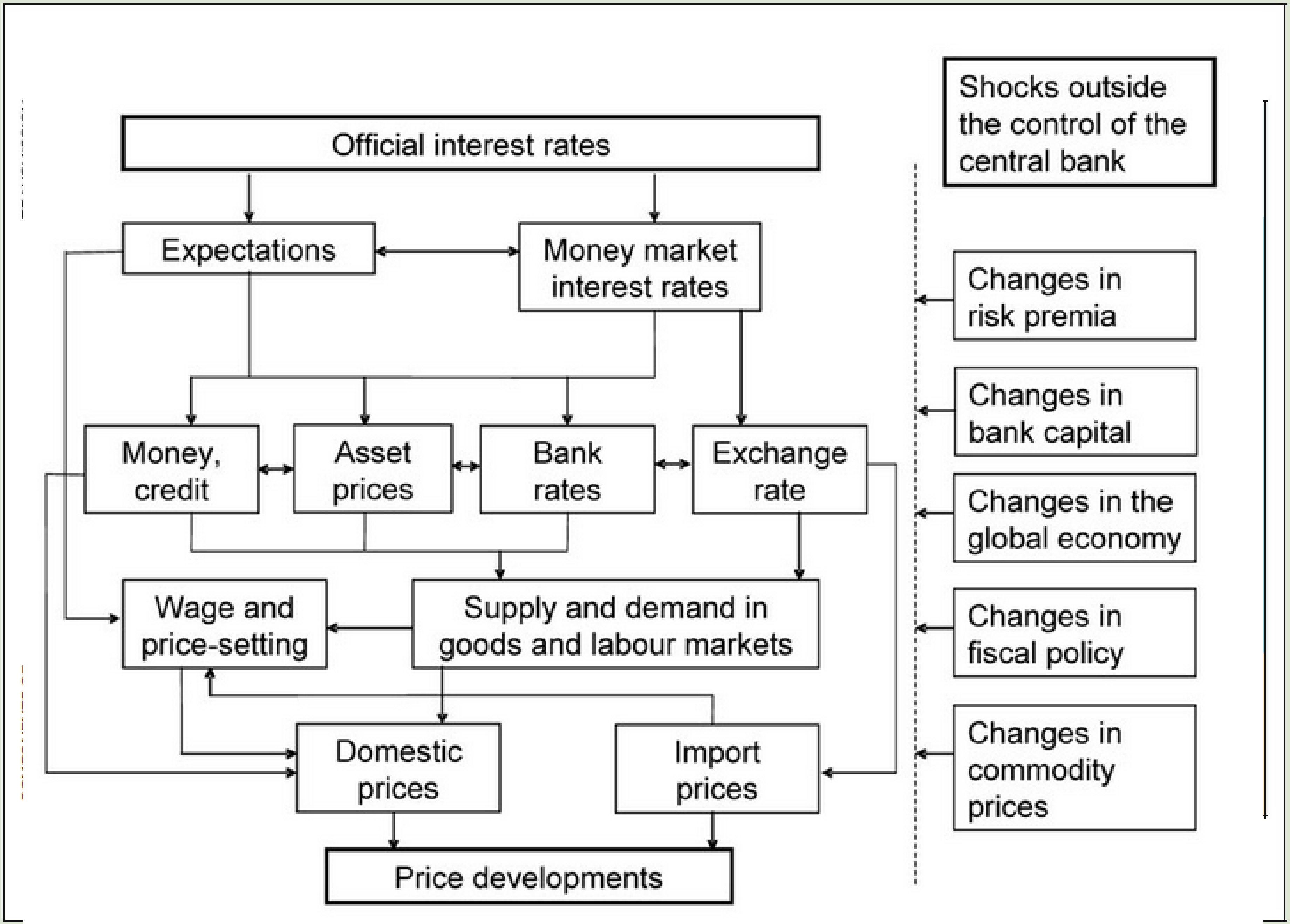


FIGURE 3 The Link Between Monetary Policy and GDP: Monetary Transmission Mechanisms

MONETARY POLICY STRATEGY – MONETARY ANALYSIS

Analysis of monetary and credit developments

Long-run link between money and prices in euro area

Identification of financial imbalances and/or asset price bubbles

Money as medium to long-term benchmark

MONETARY POLICY STRATEGY – MONETARY ANALYSIS

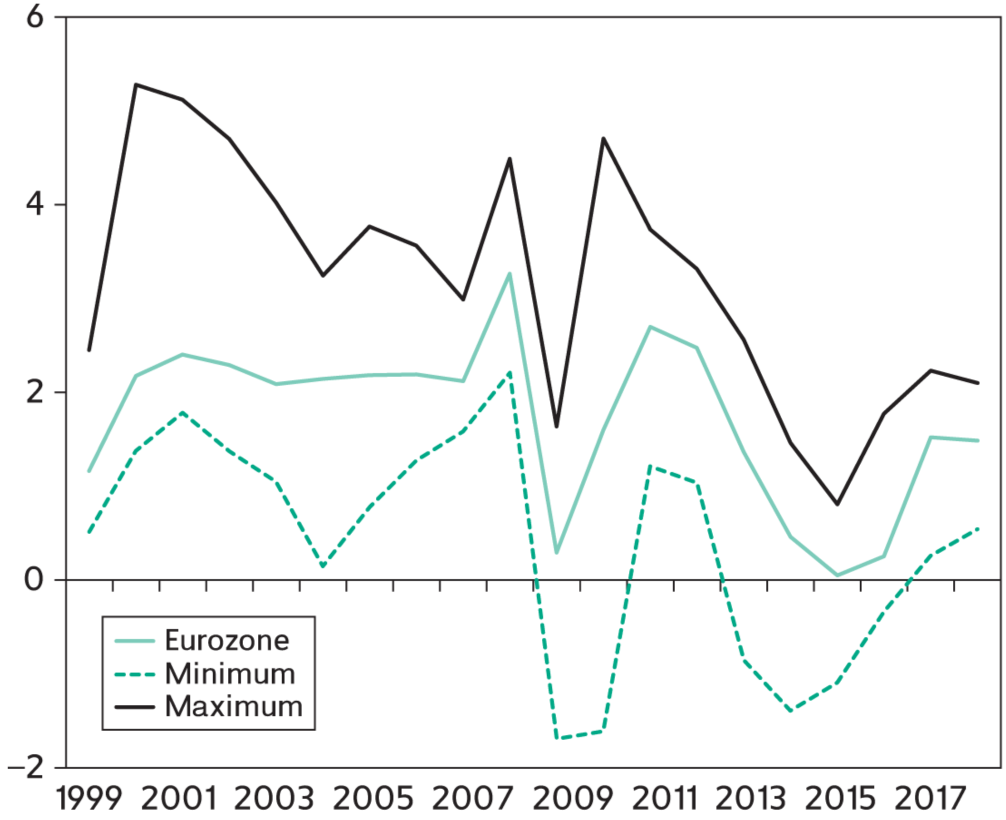
Analysis of monetary and credit developments

- Long-run link between money and prices in euro area
- Identification of financial imbalances and/or asset price bubbles
- Money as medium to long-term benchmark

ECB's inflation performance

On average, Eurozone inflation has been 1.7 per cent (which is less than with Deutschmark in Germany before).

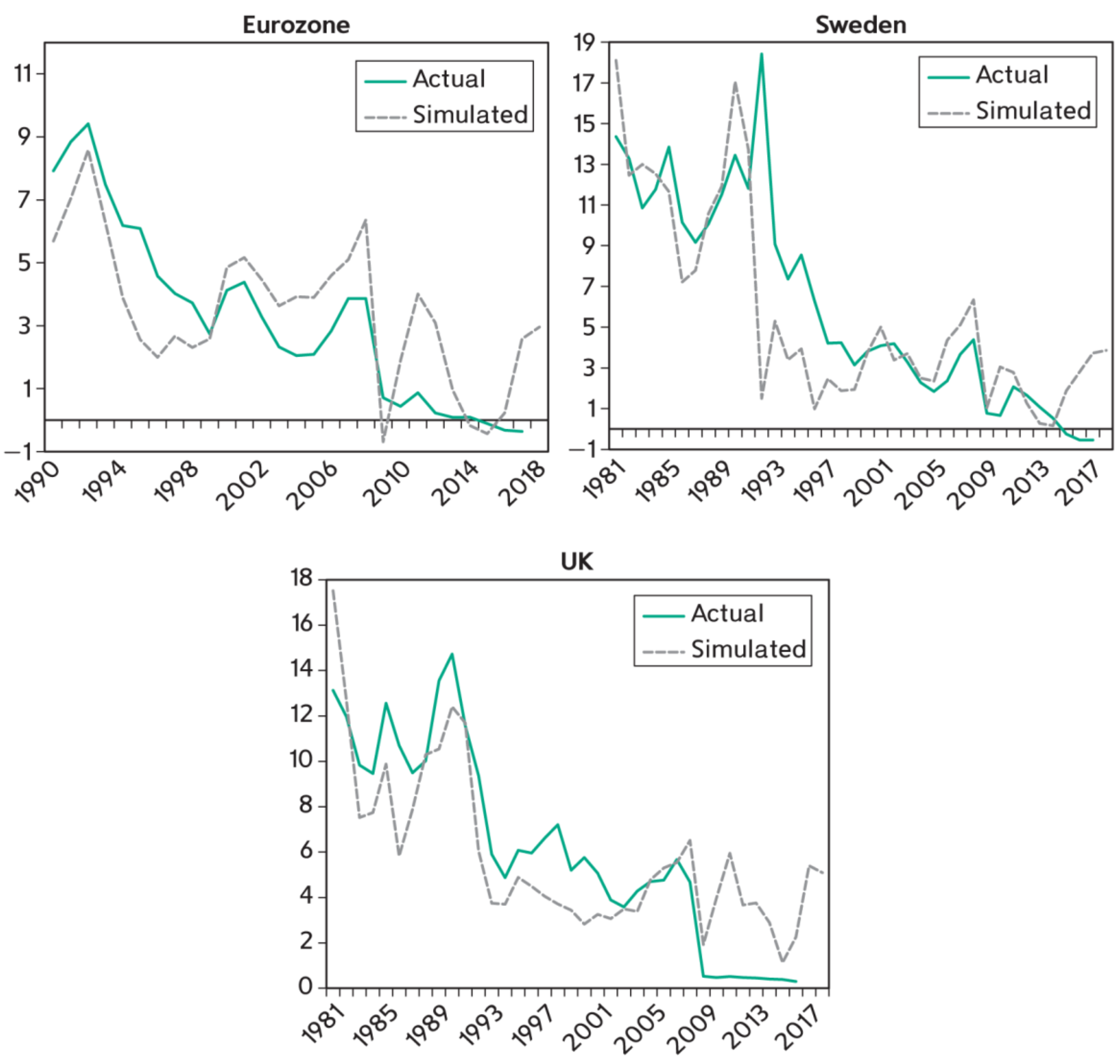
Figure 16.7 Inflation rates, 1999–2018 (per cent per annum)



Source: AMECO, European Commission.

ECB and the Taylor Rule

Figure 16.8 Actual and simulated interest rates, 1981–2018



Sources: IMF and *Economic Outlook*, OECD.

Taylor Rule:

$$i_t = a(\pi_t - \pi^*) + b(y_t - y_t^*)$$

Independence

- A central bank must be free to operate without outside interference, but delegation to unelected officials needs to be counterbalanced by democratic accountability.
- Dimensions of independence:
  - institutional independence;
  - personal independence;
  - independence with respect to policy objectives and instruments;
  - financial independence.
- Eurosystem is characterized by a great degree of independence (probably the world's most independent central bank).

'When exercising the powers and carrying out the tasks and duties conferred upon them by this Treaty and the Statute of the ESCB, neither the ECB, nor a national central bank, nor any member of their decision-making bodies shall seek or take instructions from Community institutions or bodies, from any government of a Member State or from any other body. The Community institutions and bodies and the governments of the Member States undertake to respect this principle and not to seek to influence the members of the decision-making bodies of the ECB or of the national central banks in the performance of their tasks.' (Treaty, Art. 130)

Accountability

- In a democratic society, delegation to unelected officials (like ECB Governing Council members are) must be counterbalanced by democratic accountability.
- ECB accountability is exercised in two ways—reporting and transparency:
  - Formally, the Eurosystem operates under the control of the European Parliament.
  - ECB is required to sent an annual report to the Parliament, as well as to the Council and the Commission.
  - The report is debated by the Parliament.
  - The Parliament may request that the President of the ECB and the other members of the Executive Board testify to the Parliament's Economic and Monetary Affairs Committee (so-called 'Monetary Dialogue').
  - In addition, the President of the EU Council and a member of the European Commission may participate in the meetings of the Governing Council, but without voting rights.

Transparency

By revealing the contents of its deliberations, a central bank conveys the rationale behind and difficulties faced by its decisions to the public (the media, the financial markets and independent observers).

Table 16.1 Provision of information on monetary policy meetings

	Public debt	ESCB	Bank of Japan	Bank of England	Bank of Canada	Swedish Riksbank
Interest-rate decision immediately announced	Yes (after 1994)	Yes	Yes	Yes	Yes	Yes
Supporting statement providing some rationale for change	Yes	Yes	Yes	Sometimes	Yes	Yes
Release of minutes	5–8 weeks[a]	No	1 month	13 days	n.a.	2–4 weeks
Official minutes provide full details of:						
Internal debate	Yes	No	Yes	Yes	n.a.	No
Individuals' views	Yes	No	No	Yes	No	No
Verbatim records of MP meetings are kept	No	Yes	No	No	No	Yes
Verbatim records released to the public after:	5 years	n.a.	10 years	n.a.	n.a.	n.a.

[a] The minutes are released after the following FOMC meeting.

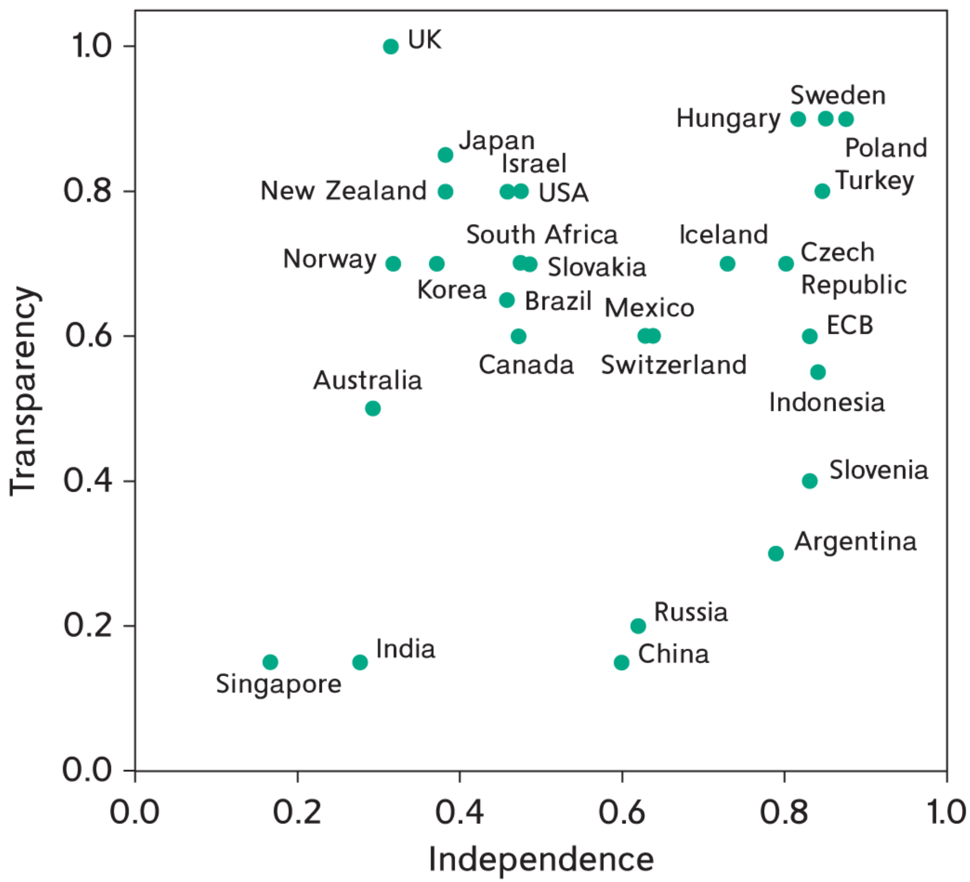
Source: Blinder et al. (2001).

[10] The European Parliament may not order NCB governors to testify because NCBs are not European institutions.

Independence and accountability

Independence and transparency indices:

Figure 16.9 Independence and transparency indices, 2008



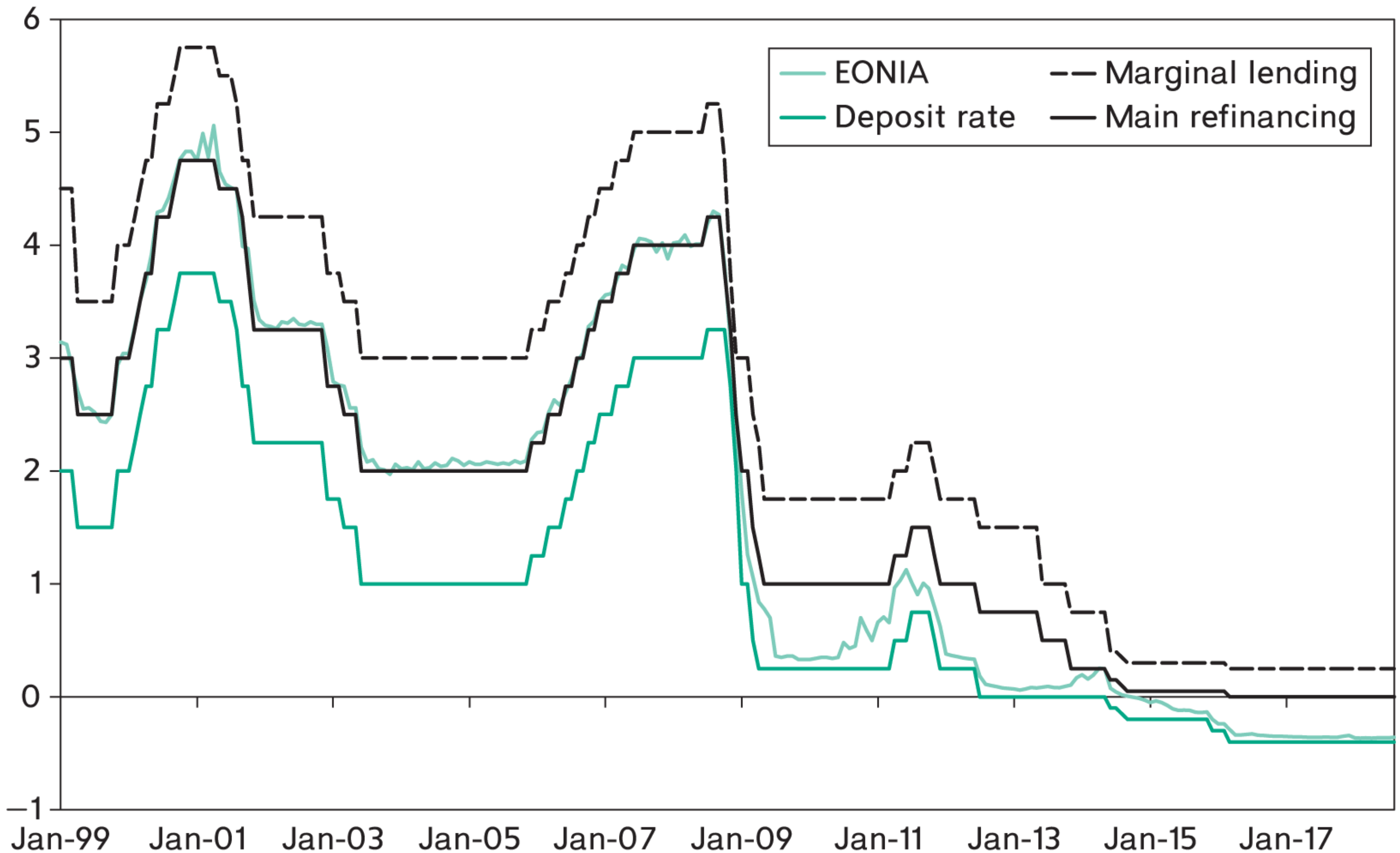
Source: Based on data from Crowe and Meade (2008).

Instruments

- Eurosystem uses the short-term interest rate: Its changes have a knock-on effect on longer-term interest rates (and thus on the cost of credit), on asset prices (and thus on capital costs of firms), and on the exchange rate (and thus on foreign demand for domestic goods and services).
- The Eurosystem focuses on the overnight rate EONIA (European Over Night Index Average, a weighted average of overnight lending transactions in the Eurozone's interbank market):
  - The Eurosystem creates a ceiling and a floor for EONIA by maintaining open lending and deposit facilities at pre-announced interest rates;
  - The Eurosystem conducts, usually weekly, auctions at a rate that it chooses, thus providing liquidity to the banking system and the chosen interest rate serves as a precise guide for EONIA. However, currently a 'fixed rate full allotment policy'.

The ECB‘s policy rates

Figure 16.10 ECB interest rates, January 1999–August 2018



Source: Based on data from European Central Bank, *Monthly Bulletin*.

The first years (until the Great Crisis)

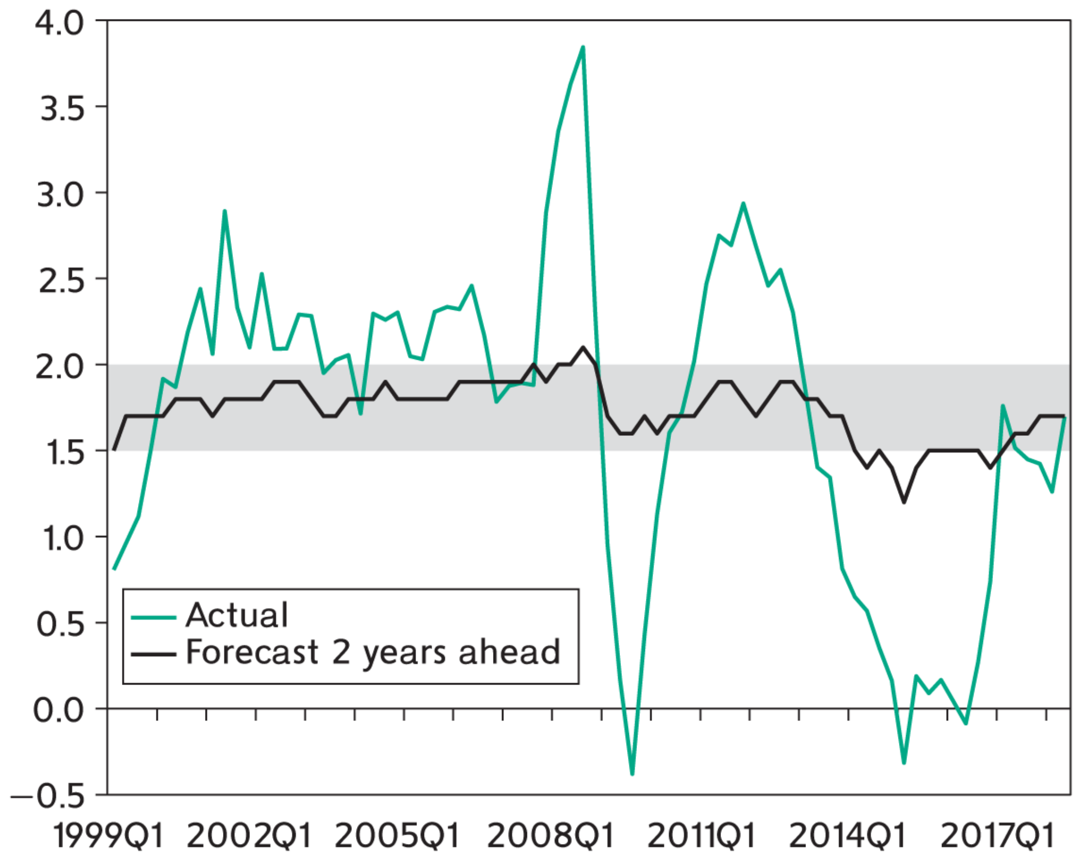
- A difficult period:
  - oil shock in 2000;
  - September, 11 in 2001;
  - oil prices rose to record level
  - US financial crisis started mid-2007.

- Result: Inflation almost always above 2%, but close to target (until 2007) and lower than perceived.

- Growth has been generally slow in the Eurozone, prompting criticism of the ECB, including by some member governments.

The first years (until the Great Crisis): inflation

Figure 16.11 Inflation in the Eurozone (%), 1999Q1–2018Q2

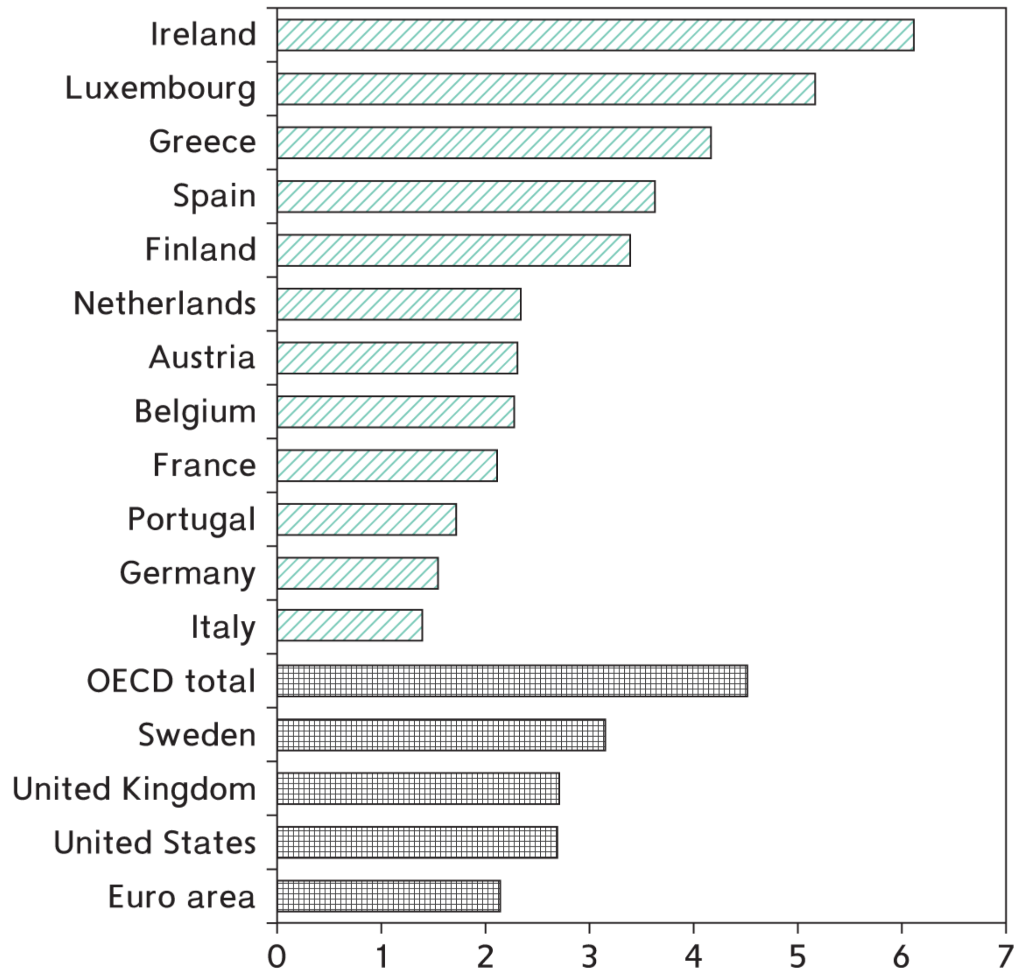


Note: The figure shows for each quarter the actual inflation rate (over the previous four quarters) and forecasted inflation over a two-year horizon, computed by the ECB as the average of forecasts produced by professional forecasters.

Sources: Based on data from IMF and *Survey of Professional Forecasters*, ECB.

The first years (until the Great Crisis): growth

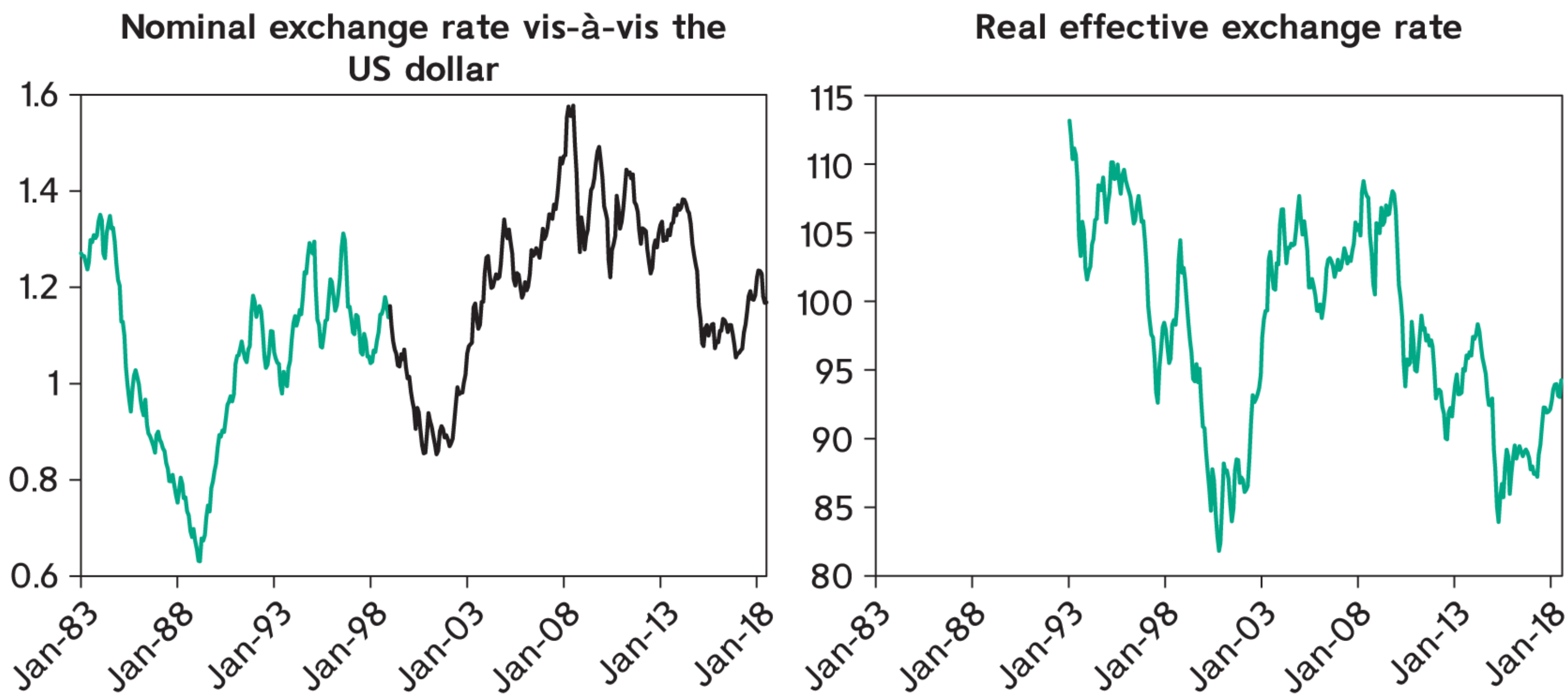
Figure 16.13 Average annual GDP growth rate (%), 1999–2008



Source: Based on data from *Economic Outlook*, OECD.

The first years (until the Great Crisis): the Euro exchange rate

Figure 16.14 The dollar/euro exchange rate, January 1983–June 2014

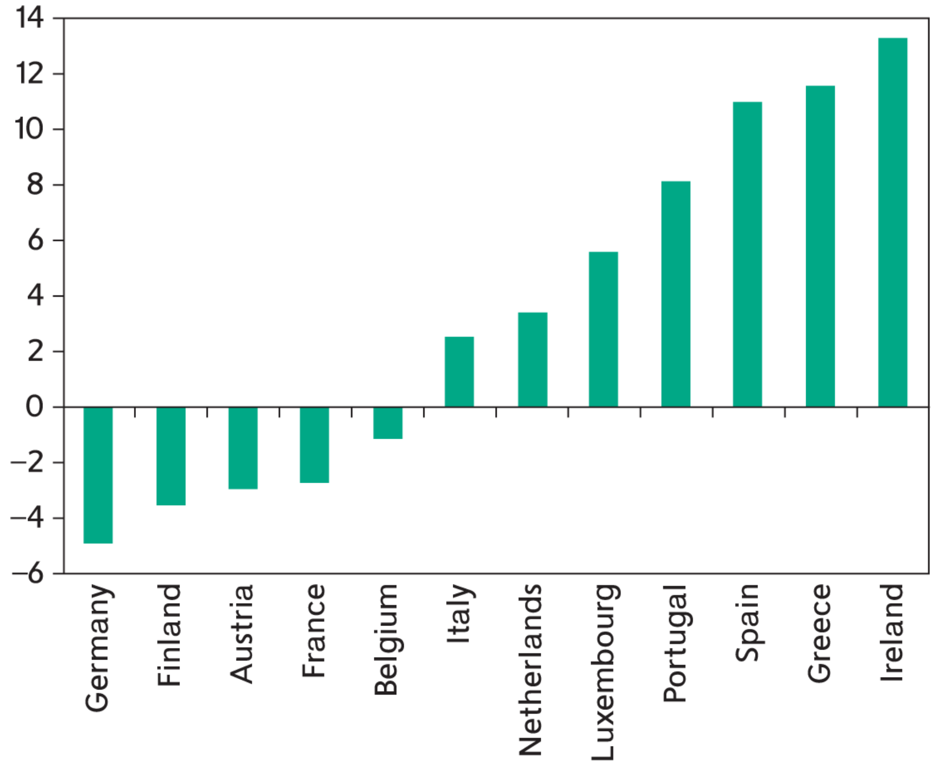


Note: Before 1999, there was no euro. The 'synthetic euro' used here is the value of the ECU, a basket of EU currencies. An increase of the index indicates a euro appreciation.

Source: Based on data from European Central Bank.

The first years (until the Great Crisis): lasting differences in inflation

Figure 16.15 Change in price levels relative to the Eurozone, 1999–2008



Source: Based on data from OECD.

[11] Higher domestic inflation means that P/P^* increases. With the nominal exchange rate E permanently fixed, the real exchange rate EP/P^* appreciates.

The first years (until the Great Crisis): lasting differences in inflation

Still, large inflation differentials have occurred:

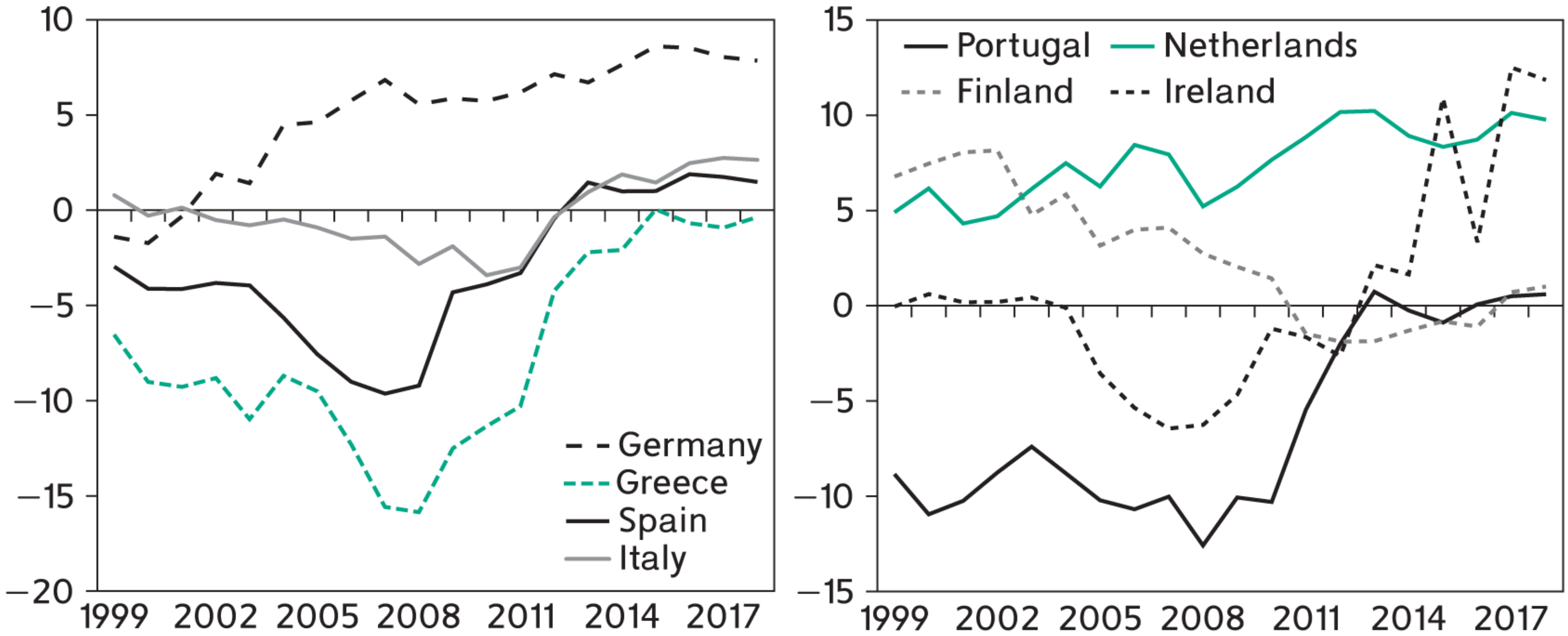
- lower than average: Germany, France and Finland;
- higher than average: Ireland, Spain, Portugal, Netherlands and Italy.

Possible causes:

- catching up in productivity levels (Balassa–Samuelson effect);
- wrong initial conversion rates;
- autonomous wage and price setting;
- policy mistakes, such as fiscal expansion;
- asymmetric shocks, such as oil price effects.

The first years (until the Great Crisis): diverging current account

Figure 16.16 Current accounts (% of GDP) 1999–2018



Source: Based on data from AMECO, European Commission.