





EUROPEAN CENTRAL BANK

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**THE  
MONETARY  
POLICY  
OF THE ECB  
2004**

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*The cut-off date for the statistics included in this issue was end-June 2003.*

ISBN 92-9181-479-2 (print)  
ISBN 92-9181-480-6 (online)

# CONTENTS

<b>FOREWORD</b>	<b>7</b>
<b>CHAPTER 1</b>	
<b>The institutional framework of the single monetary policy</b>	<b>9</b>
<b>CHAPTER 2</b>	
<b>The economic and financial structure of the euro area</b>	<b>17</b>
2.1 Key characteristics of the real economy	17
2.2 Labour market	19
2.3 Government sector	21
2.4 External trade	24
2.5 Financial structure	25
2.6 Financial markets	30
2.7 Financial intermediaries	34
<b>CHAPTER 3</b>	
<b>The ECB's monetary policy strategy</b>	<b>41</b>
3.1 The role of monetary policy and the benefits of price stability	41
3.2 The transmission mechanism of monetary policy	44
3.3 The ECB's monetary policy strategy: general principles	49
3.4 The ECB's quantitative definition of price stability	50
3.5 The analysis of risks to price stability in the ECB's monetary policy strategy	55
3.6 Accountability, transparency and communication	66
<b>CHAPTER 4</b>	
<b>Monetary policy implementation</b>	<b>71</b>
4.1 General principles and objectives behind the design of the operational framework	71
4.2 Overview of the Eurosystem's operational framework	73
4.3 Minimum reserves	77
4.4 Open market operations	79
4.5 Standing facilities	84
4.6 Central bank liquidity and the liquidity needs of the banking system	85
4.7 Experience from January 1999 to June 2003	89
<b>CHAPTER 5</b>	
<b>The conduct of monetary policy in the first years of the single monetary policy</b>	<b>91</b>
5.1 Introduction	91
5.2 Main developments	92
5.3 An assessment of monetary policy during this period	99

## **ANNEX**

<b>History – The three stages of Economic and Monetary Union</b>	<b>101</b>
--	------------

<b>GLOSSARY</b>	<b>105</b>
-----------------	------------

<b>BIBLIOGRAPHY</b>	<b>121</b>
---------------------	------------

<b>INDEX</b>	<b>125</b>
--------------	------------

## **BOXES**

1.1 Key provisions from the Treaty and the Statute of the ESCB	14
2.1 Institutional arrangements at the EU level for sound public finances	23
2.2 Financial markets: key terms	30
2.3 Monetary aggregates	36
3.1 Empirical findings on monetary policy transmission in the euro area	48
3.2 Construction and features of the HICP	52
3.3 The medium-term orientation of the ECB's monetary policy	54
3.4 Alternative monetary policy strategies	56
3.5 Statistics relating to economic and financial developments in the euro area	58
3.6 Money and prices in the long run	63
3.7 The ECB's reference value for monetary growth	64
3.8 Key communication channels used by the ECB	69
4.1 Counterparties and collateral	74
4.2 Changes to the maturity of the main refinancing operations and the reserve maintenance period as of March 2004	81
4.3 Types of open market transactions	83

## **TABLES**

2.1 Key real economy characteristics of the euro area in 2002	18
2.2 Participation rates by gender and age group in the euro area and the United States in 2002	20
2.3 External trade in goods of the euro area in 2002	25
2.4 Financial investment and financing of non-financial sectors in the euro area at end-2002	28
2.5 Amounts outstanding of euro-denominated short-term debt securities issued by euro area residents	32
2.6 Amounts outstanding of euro-denominated long-term debt securities issued by euro area residents	33
2.7 Amounts outstanding of debt securities denominated in national currency issued by residents in the euro area, the United States and Japan at end-2002	34
2.8 Stock market capitalisation in the euro area, the United States and Japan	34

2.9	Number of domestic and foreign companies listed on stock markets in the euro area, the United States, and Japan	35
2.10	Number of euro area monetary financial institutions	36
2.11	Definitions of euro area monetary aggregates	37
2.12	Bank deposits and loans in the euro area, the United States and Japan at end-2002	39
3.1	Estimates of responses of real GDP and consumer prices to a 1 percentage point increase in the policy-controlled interest rate in the euro area	48
3.2	Weights of the main euro area HICP components applicable for 2003	52
4.1	Eurosystem open market operations and standing facilities	73
4.2	Credit institutions' liabilities included in the reserve base	77
4.3	Central bank balance sheet structure	87
4.4	Contributions to the banking system's liquidity	88

## CHARTS

1.1	The decision-making bodies of the ECB	10
2.1	Breakdown by age of total population in 2002	17
2.2	Unemployment in the euro area, the United States and Japan	19
2.3	General government deficit and debt in the euro area	22
2.4	Trade weights of the euro area's 20 main trading partners	25
2.5	Functions of financial systems	26
2.6	Percentage shares of components of M3 at end-2002	38
2.7	Composition of the consolidated balance sheet of euro area MFIs (including the Eurosystem) at end-2002	39
3.1	A stylised illustration of the transmission mechanism from interest rates to prices	45
3.2	The stability-oriented monetary policy strategy of the ECB	66
4.1	Key ECB interest rates and the EONIA	76
4.2	The functioning of the Eurosystem's reserve requirement system	78
4.3	Recourse to standing facilities from January 1999 to June 2003	85
4.4	Recourse to standing facilities within a maintenance period	86
4.5	Volume of the main and longer-term refinancing operations	89
4.6	Required reserves and autonomous liquidity factors	90
5.1	HICP inflation	92
5.2	Nominal effective exchange rate of the euro and oil prices	93
5.3	M1 and loans to the private sector	93
5.4	M3 growth and the reference value	94
5.5	Real GDP, industrial production and industrial confidence for the euro area	95
5.6	Indicators of long-term inflation expectations in the euro area	96



## FOREWORD

Since 1 January 1999 the European Central Bank (ECB) has conducted the single monetary policy for the euro area. The Treaty on European Union assigns the Eurosystem the primary objective of maintaining price stability, reflecting a broad consensus in society that maintaining stable prices is the best contribution that monetary policy can make to economic growth, job creation and social cohesion.

In October 1998 the Governing Council adopted its monetary policy strategy and presented it to the public, well in advance of the launch of the single currency. The strategy has been successful in providing a robust framework for decision-making and a basis for accountability vis-à-vis the public. This was essential for establishing the credibility of the ECB and confidence in the euro from the outset.

In its early years, the single monetary policy faced a number of significant challenges. The ECB was confronted with a quadrupling of oil prices as well as pronounced movements in the foreign exchange and stock markets. It also had to deal with the period of uncertainty cast over the world economy in 2001 by the terrorist attacks of September 11 and the subsequent geopolitical tensions. Despite this demanding context, the ECB has managed to gain and maintain the trust of the public and of the markets. Inflation has been kept at low levels despite substantial adverse shocks, while indicators of long-term inflation expectations have remained

in line with the ECB's definition of price stability.

At the same time, the Eurosystem has also performed to the highest technical standards. Its operational framework for the single monetary policy has been functioning very smoothly since the launch of the euro in 1999 and, as a result, there has been little volatility in short-term interest rates.

In order to explain important aspects of the single monetary policy to a broader audience, this book provides a comprehensive overview of the ECB's monetary policy and its economic and institutional background. The first edition, produced in 2001, was translated into most of the official Community languages together with Chinese, Japanese and Korean. Given the strong interest in this publication in Europe and beyond, and in the light of new developments over the past two years, the ECB has now decided to issue an updated version.

The structure of the second edition of this publication mirrors that of the first and provides an update on the economic and financial structure of the euro area. The book has been revised in line with the Governing Council's confirmation and clarification of the ECB's monetary policy strategy of May 2003. It also takes account of some changes to the Eurosystem's operational framework for monetary policy and of our experience with actual policy-making since the publication of the first edition.



I am sure this new edition of “The monetary policy of the ECB” will further contribute to the best possible understanding of the ECB’s monetary policy.

Frankfurt am Main, January 2004

A handwritten signature in blue ink, appearing to read "J. Trichet", is written over a light blue rectangular background. The signature is slanted upwards from left to right.

Jean-Claude Trichet

# I THE INSTITUTIONAL FRAMEWORK OF THE SINGLE MONETARY POLICY

On 1 January 1999 the European Central Bank (ECB) assumed responsibility for monetary policy in the euro area – the second largest economic area in the world after the United States. The transfer of responsibility for monetary policy from 11 national central banks – which became 12, with the participation of Greece, on 1 January 2001 – to a new supranational institution represented a milestone in a long and complex process of integration among European countries. Before adopting the euro, all candidate countries were required to fulfil a number of convergence criteria, which were aimed at ensuring the economic and legal preconditions for successfully participating in a stability-oriented monetary union. This chapter describes the main institutional aspects most relevant for understanding the ECB's monetary policy.

## The ECB, the ESCB and the Eurosystem

The Treaty is the legal basis for the single monetary policy...

The legal basis for the single monetary policy is the Treaty establishing the European Community (as amended). Excerpts of most relevant legal provisions can be found in Box 1.1.<sup>1</sup>

as long as there are Member States that have not yet adopted the euro, it will be necessary to make a distinction between the Eurosystem and the ESCB. The term “euro area” refers to the area comprising those EU Member States that have adopted the euro.

## The objective of the single monetary policy and tasks to be carried out through the Eurosystem

The Treaty (Article 105 (1)) – which refers to the ESCB rather than to the Eurosystem, since it was drawn up on the premise that eventually all EU Member States would adopt the euro – states that “the primary objective of the ESCB shall be to maintain price stability” and that, “without prejudice to the objective of price stability, the ESCB shall support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the

Overriding importance of price stability

...and established the ECB and the ESCB

The Treaty and the Statute of the European System of Central Banks and of the European Central Bank (Statute of the ESCB), which is attached to that Treaty as a protocol, established both the ECB and the European System of Central Banks (ESCB) as from 1 June 1998. The ESCB comprises the ECB and the national central banks (NCBs) of all EU Member States (Article 107 (1) of the Treaty).<sup>2</sup>

The terms “Eurosystem” and “euro area”

The term “Eurosystem” denotes the ECB and the NCBs of those Member States that have adopted the euro.<sup>3</sup> For

<sup>1</sup> In June 2003 the European Convention on the future of Europe submitted a draft Treaty establishing a Constitution for Europe (“draft Constitution”) to the European Council. At the end of 2003 the draft Constitution formed the basis for discussion in the Intergovernmental Conference on the Future of the Union. The key provisions for the single monetary policy were included in the draft Constitution without changes in substance.

<sup>2</sup> In contrast to the ESCB as a whole, the ECB has been vested with legal personality by the Treaty. Each of the NCBs has legal personality, as provided by the national laws of the respective country.

<sup>3</sup> The governors of the NCBs of those EU Member States that have not yet adopted the euro do not participate in monetary policy decision-making for the euro area and such NCBs do not participate in the operational implementation of these decisions.

Community as laid down in Article 2”. In this respect, Article 2 of the Treaty mentions as objectives of the Community, inter alia, “a high level of employment (...), sustainable and non-inflationary growth, a high degree of competitiveness and convergence of economic performance”. The Treaty thus establishes a clear hierarchy of objectives for the Eurosystem and assigns overriding importance to price stability. By focusing the monetary policy of the ECB on this primary objective, the Treaty makes it clear that ensuring price stability is the most important contribution that monetary policy can make to achieving a favourable economic environment and a high level of employment.

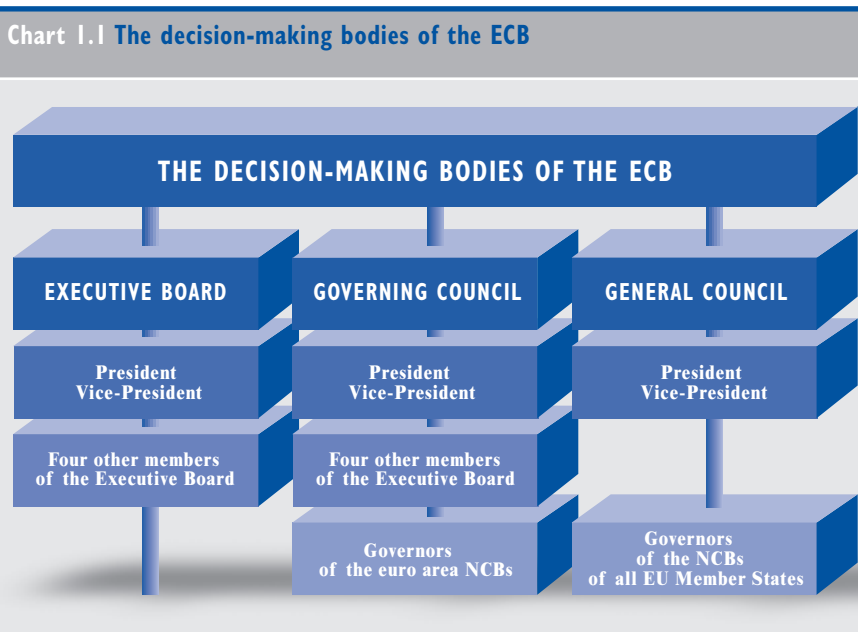
- the holding and management of the official foreign reserves of the Member States; and
- the promotion of the smooth operation of payment systems.

The ECB has the exclusive right to authorise the issuance of banknotes within the euro area. In cooperation with the NCBs, the ECB collects the statistical information necessary for the performance of the tasks of the Eurosystem, either from national authorities or directly from economic agents. Furthermore, the Eurosystem shall contribute to the smooth conduct of policies pursued by the authorities in charge of the prudential supervision of credit institutions and the stability of the financial system. In accordance with Article 6 of the Statute of the ESCB, the ECB and, subject to its approval, the NCBs may participate in international monetary institutions. The ECB shall decide how the Eurosystem shall be represented in the field of international cooperation.

**Basic tasks of the Eurosystem**

According to the Treaty (Article 105 (2)), the basic tasks to be carried out through the Eurosystem are:

- the definition and implementation of the monetary policy of the euro area;
- the conduct of foreign exchange operations;



## The decision-making bodies of the ECB

There are two decision-making bodies of the ECB which are responsible for the preparation, conduct and implementation of the single monetary policy: the Governing Council of the ECB and the Executive Board of the ECB (see Chart 1.1). A third decision-making body of the ECB is the General Council.

### Governing Council of the ECB

The Governing Council of the ECB consists of the six members of the Executive Board and the governors of the euro area NCBs (12 governors in 2003). Both the Governing Council and the Executive Board are chaired by the President of the ECB or, in his absence, by the Vice-President. The responsibilities of the Governing Council are:

- to adopt the guidelines and take the decisions necessary to ensure the performance of the tasks entrusted to the Eurosystem; and
- to formulate the monetary policy of the euro area.

In accordance with the Statute of the ESCB (Article 12.1), the formulation of monetary policy for the euro area includes taking decisions on “intermediate monetary objectives, key interest rates and the supply of reserves” in the Eurosystem. Moreover, the Governing Council shall establish the necessary guidelines for the implementation of those decisions.

### Executive Board of the ECB

The Executive Board of the ECB consists of the President and the Vice-President and four other members, all appointed by common accord of the

Heads of State or Government of the euro area countries. In accordance with the Statute of the ESCB (Articles 12.1 and 12.2), the Executive Board:

- prepares the meetings of the Governing Council;
- implements monetary policy in accordance with the guidelines and decisions laid down by the Governing Council and, in so doing, gives the necessary instructions to the euro area NCBs;
- is responsible for the current business of the ECB; and
- assumes certain powers delegated to it by the Governing Council, which may include powers of a regulatory nature.

The General Council of the ECB is composed of the President and the Vice-President of the ECB and the governors of the NCBs of all EU Member States (15 in 2003; 25 following the enlargement of the EU as of 1 May 2004). It will remain in existence for as long as there are Member States that have not adopted the euro as their currency. The General Council has no responsibility for monetary policy decisions in the euro area. It carries out those tasks inherited from the European Monetary Institute (EMI)<sup>4</sup> that still have to be performed precisely because not all the Member States have adopted the euro. In accordance with the Statute of the ESCB (Articles 44, 45 and 47) and the Treaty (Article 117(2)), the General Council contributes to:

### General Council of the ECB

- strengthening the coordination of monetary policies (of the Member States that have not yet adopted the euro and the ECB), with the aim of ensuring price stability;

<sup>4</sup> The EMI was established on 1 January 1994 and went into liquidation following the establishment of the ECB on 1 June 1998. In addition to preparing for the establishment of the ESCB, the EMI was responsible for strengthening central bank cooperation and monetary policy coordination. For further details on the history of Economic and Monetary Union (EMU), see also the annex.

- the collection of statistical information;
- the reporting activities of the ECB; and
- the necessary preparations for irrevocably fixing the exchange rates of Member States that have not yet adopted the euro.

### Voting modalities in the Governing Council

#### Basic principles

The Statute of the ESCB states that the Governing Council shall act by a simple majority when taking decisions on monetary policy and on the other tasks of the Eurosystem. Monetary policy decisions in the euro area must be based on a euro area perspective. Each member of the Governing Council has one vote. In the event of a tie, the President of the ECB has a casting vote. When taking decisions, the members of the Governing Council do not act as national representatives but in a fully independent, personal capacity.

#### Adjustment of voting modalities in the Governing Council

The Governing Council will also need to take decisions in a timely and efficient manner in an enlarged euro area. To this end, prior to the accession of ten additional countries to the EU on 1 May 2004, on 21 March 2003 the European Council approved an amendment to the Statute of the ESCB which provides for an adjustment of the voting modalities in the Governing Council.<sup>5</sup> According to the new voting system, the six members of the Executive Board will maintain a permanent voting right, but the voting rights of NCB Governors will be subject to a rotation scheme once the number of euro area countries exceeds 15. However, all Governors

will participate in all meetings of the Governing Council, irrespective of whether they hold a voting right at the time.

### Central bank independence

The institutional framework for the single monetary policy establishes a central bank that is independent from political influence. A large body of theoretical analysis, supported by substantial empirical evidence, indicates that central bank independence is conducive to maintaining price stability.

Independence from political influence

Article 108 of the Treaty lays down the important principle of central bank independence. When exercising the powers and carrying out the tasks and duties conferred upon them, neither the ECB nor the NCBs, nor any member of their decision-making bodies, are allowed to 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 also have to respect this principle and must not seek to influence the members of the decision-making bodies of the ECB.

There are also other provisions to safeguard the independence of the Eurosystem and the decision-making bodies of the ECB. For instance, the ECB's financial arrangements are kept separate from those of the European Community. The ECB has its own budget, and its capital is subscribed and paid up by the euro area NCBs. Long terms of office for the members of the Governing Council, and a rule stipulating that members of

Further provisions that help to safeguard independence

<sup>5</sup> This decision was submitted to all Member States for ratification in accordance with their respective constitutional requirements.

the Executive Board cannot be re-appointed, also contribute to minimising potential political influence on individual members of the ECB's decision-making bodies. Furthermore, the Eurosystem's independence is preserved by the Treaty prohibition of any provision of central bank credit to the public sector (see Box 2.1).

quarterly reports on the activities of the Eurosystem as well as a weekly consolidated financial statement. In addition, it has to provide an annual report on its activities and on the monetary policy of the previous and the current year. The annual report has to be addressed to the European Parliament, the EU Council, the European Commission and the European Council. In order to achieve the highest level of transparency, the ECB has decided to go beyond these statutory reporting requirements (see Chapter 3).

**Exchange rate policy also has to focus on price stability**

The Treaty also contains provisions ensuring that the pursuit of the objective of price stability is fully respected by the single exchange rate policy. While the Treaty foresees that decisions on foreign exchange policy are a shared responsibility of the ECOFIN Council and the ECB, its provisions ensure that foreign exchange policy is fully consistent with the primary objective of the single monetary policy. First, Article 4 of the Treaty explicitly states that the primary objective of both the single monetary policy and exchange rate policy shall be to maintain price stability. Second, as regards the overall framework within which exchange rate policy is to be conducted, the Treaty requires that decisions in this area be without prejudice to the primary objective. Finally, the sole competence for deciding on and carrying out operations in the foreign exchange market lies with the Eurosystem.

### **Reporting obligations**

**Provisions to ensure accountability**

To retain legitimacy, an independent central bank must be accountable to democratic institutions and the general public for its actions in the pursuit of its mandate. Without encroaching on the Eurosystem's independence, Article 15 of the Statute of the ESCB imposes precise reporting obligations on the ECB. The ECB has to publish

## Box 1.1 Key provisions from the Treaty and the Statute of the ESCB

This box includes selected key monetary policy provisions taken from the Treaty and the Statute of the ESCB. The full legal texts are available from: [www.eu.int](http://www.eu.int) and [www.ecb.int](http://www.ecb.int).

### 1. EXCERPTS FROM THE TREATY ESTABLISHING THE EUROPEAN COMMUNITY

#### Article 2

The Community shall have as its task, by establishing a common market and an economic and monetary union and by implementing common policies or activities referred to in Articles 3 and 4, to promote throughout the Community a harmonious, balanced and sustainable development of economic activities, a high level of employment and of social protection, equality between men and women, sustainable and non-inflationary growth, a high degree of competitiveness and convergence of economic performance, a high level of protection and improvement of the quality of the environment, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States.

#### Article 4

1. For the purposes set out in Article 2, the activities of the Member States and the Community shall include, as provided in this Treaty and in accordance with the timetable set out therein, the adoption of an economic policy which is based on the close coordination of Member States' economic policies, on the internal market and on the definition of common objectives, and conducted in accordance with the principle of an open market economy with free competition.

2. Concurrently with the foregoing, and as provided in this Treaty and in accordance with the timetable and the procedures set out therein, these activities shall include the irrevocable fixing of exchange rates leading to the introduction of a single currency, the ECU, and the definition and conduct of a single monetary policy and exchange-rate policy the primary objective of both of which shall be to maintain price stability and, without prejudice to this objective, to support the general economic policies in the Community, in accordance with the principle of an open market economy with free competition.

3. These activities of the Member States and the Community shall entail compliance with the following guiding principles: stable prices, sound public finances and monetary conditions and a sustainable balance of payments.

#### Article 105

1. 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 Community with a view to contributing to the achievement of the objectives of the Community as laid down in Article 2. The ESCB shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources, and in compliance with the principles set out in Article 4.

2. The basic tasks to be carried out through the ESCB shall be:

- to define and implement the monetary policy of the Community;
- to conduct foreign exchange operations consistent with the provisions of Article 111;
- to hold and manage the official foreign reserves of the Member States;

- to promote the smooth operation of payment systems.
3. The third indent of paragraph 2 shall be without prejudice to the holding and management by the governments of Member States of foreign-exchange working balances.
  4. The ECB shall be consulted:
    - on any proposed Community act in its fields of competence;
    - by national authorities regarding any draft legislative provision in its fields of competence, but within the limits and under the conditions set out by the Council in accordance with the procedure laid down in Article 107(6). The ECB may submit opinions to the appropriate Community institutions or bodies or to national authorities on matters in its fields of competence.
  5. The ESCB shall contribute to the smooth conduct of policies pursued by the competent authorities relating to the prudential supervision of credit institutions and the stability of the financial system.
  6. The Council may, acting unanimously on a proposal from the Commission and after consulting the ECB and after receiving the assent of the European Parliament, confer upon the ECB specific tasks concerning policies relating to the prudential supervision of credit institutions and other financial institutions with the exception of insurance undertakings.

#### **Article 107**

1. The ESCB shall be composed of the ECB and of the national central banks.
2. The ECB shall have legal personality.
3. The ESCB shall be governed by the decision-making bodies of the ECB which shall be the Governing Council and the Executive Board. [...]

#### **Article 108**

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.

### **2. EXCERPTS FROM PROTOCOL (NO 18) ON THE STATUTE OF THE EUROPEAN SYSTEM OF CENTRAL BANKS AND OF THE EUROPEAN CENTRAL BANK**

#### **Article 12 (Responsibilities of the decision-making bodies)**

1. The Governing Council shall adopt the guidelines and take the decisions necessary to ensure the performance of the tasks entrusted to the ESCB under this Treaty and this Statute. The Governing Council shall formulate the monetary policy of the Community including, as appropriate, decisions relating to intermediate monetary objectives, key interest rates and the supply of reserves in the ESCB, and shall establish the necessary guidelines for their implementation. The Executive Board shall implement monetary policy in accordance with the guidelines and decisions laid down by the Governing Council. In doing so the Executive Board shall give the necessary instructions to national central banks. In addition the Executive Board may have certain powers delegated to it where the Governing Council so decides. To the extent deemed possible



and appropriate and without prejudice to the provisions of this Article, the ECB shall have recourse to the national central banks to carry out operations which form part of the tasks of the ESCB.

2. The Executive Board shall have the responsibility for the preparation of meetings of the Governing Council. [...]

#### **Article 15 (Reporting commitments)**

1. The ECB shall draw up and publish reports on the activities of the ESCB at least quarterly.

2. A consolidated financial statement of the ESCB shall be published each week.

3. In accordance with Article 113 of this Treaty, the ECB shall address an annual report on the activities of the ESCB and on the monetary policy of both the previous and the current year to the European Parliament, the Council and the Commission, and also to the European Council.

4. The reports and statements referred to in this Article shall be made available to interested parties free of charge.

#### **Article 17 (Accounts with the ECB and the national central banks)**

In order to conduct their operations, the ECB and the national central banks may open accounts for credit institutions, public entities and other market participants and accept assets, including book entry securities, as collateral.

#### **Article 18 (Open market and credit operations)**

1. In order to achieve the objectives of the ESCB and to carry out its tasks, the ECB and the national central banks may:

- operate in the financial markets by buying and selling outright (spot and forward) or under repurchase agreement and by lending or borrowing claims and marketable instruments, whether in Community or in non-Community currencies, as well as precious metals;
- conduct credit operations with credit institutions and other market participants, with lending being based on adequate collateral.

2. The ECB shall establish general principles for open market and credit operations carried out by itself or the national central banks, including for the announcement of conditions under which they stand ready to enter into such transactions.

#### **Article 19 (Minimum reserves)**

1. Subject to Article 2, the ECB may require credit institutions established in Member States to hold minimum reserve on accounts with the ECB and national central banks in pursuance of monetary policy objectives. Regulations concerning the calculation and determination of the required minimum reserves may be established by the Governing Council. In cases of non-compliance the ECB shall be entitled to levy penalty interest and to impose other sanctions with comparable effect.

2. For the application of this Article, the Council shall, in accordance with the procedure laid down in Article 42, define the basis for minimum reserves and the maximum permissible ratios between those reserves and their basis, as well as the appropriate sanctions in cases of non-compliance.

## 2 THE ECONOMIC AND FINANCIAL STRUCTURE OF THE EURO AREA

The pursuit of the objective of price stability requires an understanding of the factors that shape the price formation process, including the transmission of monetary policy. This chapter provides an overview of the main economic and financial structures of the euro area economy. The key characteristics of the real economy are considered first, focusing on the composition of output, demographic and key labour market features, fiscal policy, as well as patterns of trade between the euro area and the rest of the world. Following on from this, the key characteristics of the financial structure are described by examining the money and capital markets and the main financial institutions involved, distinguishing monetary financial institutions (MFIs) from other financial intermediaries (OFIs).

### 2.1 KEY CHARACTERISTICS OF THE REAL ECONOMY

characteristics of the euro area are presented in Table 2.1.

**The euro area economy is the second largest in the world**

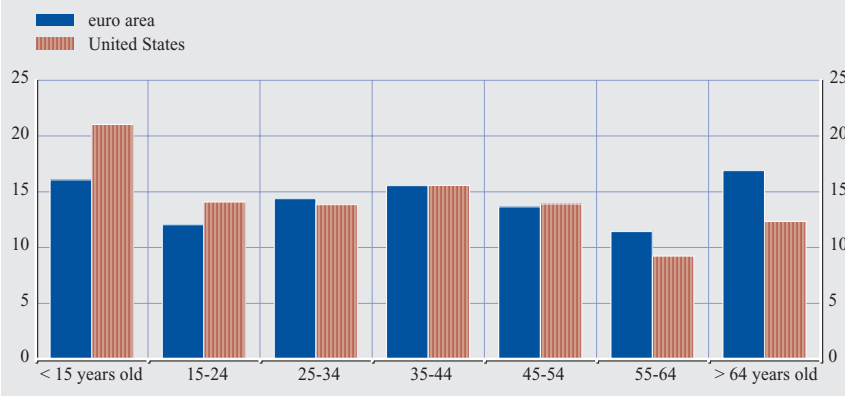
While the individual economies that now comprise the euro area may be considered relatively small and open economies, the euro area as a whole forms a large, much more closed economy. Therefore, the structural features of the euro area are better compared with those of the United States or Japan than with those of individual euro area countries. A number of key macroeconomic

Measured in terms of population, the euro area is the largest developed economy in the world: in 2002 it had a total population of 308 million, somewhat larger than that of the United States and more than twice as large as the population of Japan. Chart 2.1 shows the differences in the age structure of the populations of the euro area and the United States. On average, the euro area countries have

**Population**

**Chart 2.1 Breakdown by age of total population in 2002**

(as a percentage of total population)



Sources: Eurostat and US Census Bureau.

**Table 2.1 Key real economy characteristics of the euro area in 2002**

	Unit	Euro area	United States	Japan
Population <sup>1)</sup>	millions	307.8	287.5	127.3 <sup>2)</sup>
GDP (share of world GDP) <sup>3)</sup>	%	15.7	21.1	7.1
GDP per capita <sup>3)</sup>	€ thousands	23.0	32.3	23.4 <sup>2)</sup>
Sectors of production <sup>4)</sup>				
Agriculture, fishing, forestry	% of GDP	2.3	1.3	1.3 <sup>2)</sup>
Industry (including construction)	% of GDP	27.4	21.6	29.4 <sup>2)</sup>
Services (including non-market services)	% of GDP	70.6	77.1	69.3 <sup>2)</sup>
Unemployment rate				
(share of the labour force)	%	8.4	5.8	5.4
Labour force participation rate	%	68.2	76.4	72.7 <sup>2)</sup>
Employment rate <sup>5)</sup>	%	62.4	71.9	69.1 <sup>2)</sup>
General government				
Surplus (+) or deficit (-)	% of GDP	-2.2	-3.4	-6.7
Gross debt <sup>6)</sup>	% of GDP	69.2	59.2	154.4
Revenue	% of GDP	46.1	30.8	33.5
of which direct taxes	% of GDP	12.2	12.8	9.1
of which indirect taxes	% of GDP	13.4	7.7	8.5
of which social contributions	% of GDP	16.0	7.2	10.8
Expenditure	% of GDP	48.4	34.2	40.2
of which final consumption	% of GDP	20.3	15.6	17.8
of which social transfers	% of GDP	17.0	12.1	10.7
Exports of goods <sup>7)</sup>	% of GDP	15.0	6.5	8.7 <sup>2)</sup>
Exports of goods and services <sup>7)</sup>	% of GDP	19.7	9.3	10.7 <sup>2)</sup>
Imports of goods <sup>7)</sup>	% of GDP	13.2	11.1	7.4 <sup>2)</sup>
Imports of goods and services <sup>7)</sup>	% of GDP	17.7	13.3	10.1 <sup>2)</sup>
Exports (share of world exports) <sup>8)</sup>	%	31.2	12.4	5.8
Current account balance <sup>7)</sup>	% of GDP	0.9	-4.6	2.8

Sources: Eurostat, IMF, European Commission, OECD, Reuters, ECB and ECB calculations.

Note: For all euro area aggregates contained in this table, data for Greece are included.

1) Euro area: annual average; United States: mid-year; Japan: 1 October.

2) 2001 figures.

3) Data for United States and Japan converted into euro at OECD purchasing power parities (PPPs).

4) Based on value added at current prices.

5) As a ratio of the number of persons to the working age population (those aged between 15 and 64).

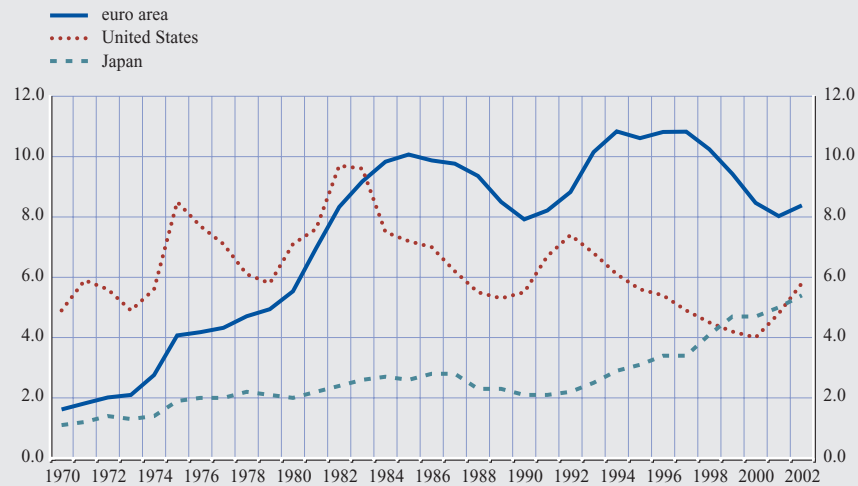
6) For euro area: gross government debt as defined in Council Regulation (EC) No 3605/93.

7) Balance of payments data, only extra-euro area trade flows for the euro area.

8) IMF World Economic Outlook; the world export share of the euro area includes intra-area trade, which represents roughly 50% of the euro area's total exports.

## Chart 2.2 Unemployment in the euro area, the United States and Japan

(as a percentage of the labour force; annual data)



Source: European Commission.

a slightly lower share of very young people and a clearly higher share of old people than the United States.

### Share in world GDP

The euro area had a 15.7% share of world GDP in 2002 (expressed in terms of purchasing power parity), compared with 21.1% for the United States and 7.1% for Japan. The shares of the individual euro area countries were significantly smaller: the largest economy within the euro area accounted for 4.4% of world GDP in 2002.

same sector accounts for a much larger share of the euro area economy. In both these economies and in Japan the industrial sector accounts for the second largest share of total output. Given the highly developed nature of these economies, the share of agriculture, fishing and forestry is relatively small in all three.

## 2.2 LABOUR MARKET

The unemployment rate in the euro area – the number of unemployed persons as a share of the labour force – reached very high levels in the 1980s and the 1990s and has on average been markedly higher than that in the United States (see Chart 2.2). This gap reflects structural differences between the labour markets in the United States and those in the euro area which have led to a higher level of structural unemployment in the euro area. Reforms affecting institutional features of labour markets were implemented in euro area countries

**Unemployment rate in the euro area structurally higher than in the United States**

### Service sector has largest share of euro area GDP

The structure of production in the euro area closely resembles that in the United States and Japan. In all three economies, the service sector accounts for the largest share of total output. There is, however, an important difference in the shares of the public and private sectors in the overall services sector in the United States and the euro area. Specifically, the public services sector in the United States is relatively small, while the

**Table 2.2 Participation rates by gender and age group in the euro area and the United States in 2002**

(as a percentage of the working age population)

	Euro area			United States		
	males	females	total	males	females	total
All age groups	77.5	58.8	68.2	83.0	70.1	76.4
15-24 <sup>1)</sup>	47.7	40.2	44.0	65.5	61.1	63.3
25-34	91.6	74.8	83.3	92.4	75.1	83.7
35-44	95.3	74.1	84.7	92.1	76.4	84.1
45-54	90.7	66.7	78.7	88.5	76.0	82.1
55-59	68.4	42.7	55.4	78.0	63.8	70.7
60-64	31.2	14.3	22.5	57.6	44.1	50.5

Sources: Eurostat and Bureau of Labor Statistics.

1) US data refer to the 16 to 24 age group.

during the 1990s, but to differing extents. In some cases these reforms have significantly reduced the level of unemployment. Nevertheless, structural rigidities remain and these explain the still high levels of unemployment in the euro area. In 2002 the average unemployment rate was 8.4%, corresponding to around 11.7 million unemployed persons in the euro area as a whole.

Relatively low labour force participation in the euro area

It is remarkable that, in addition to having a relatively high unemployment rate, the euro area also has a relatively low labour force participation rate (see Table 2.2). While the gap has narrowed somewhat over time, in 2002 the labour force participation rate in the euro area (68.2%) was significantly lower than in the United States (76.4%). In 2002 the gap compared with the United States was around 11 percentage points for women, around twice the size of that for men. The lower overall labour force participation rate in the euro area compared with the United States mainly reflects differences in the youngest and oldest age groups. In general, younger Europeans participate significantly less in the labour force than their American

counterparts. This could be linked to differences in the traditions and structures of the education and social systems. In the euro area people also tend to leave the labour force at a younger age than people in the United States. By contrast, participation rates for those aged 25 to 44 years are broadly similar.

The lower participation rate combined with the higher unemployment rate results in a much lower employment rate (measured as the number of employed persons as a share of the population between 15 and 64 years) in the euro area than in either the United States or Japan. While in the euro area the employment rate was just above 62% in 2002, in the United States and Japan the employment rates were around 70% (see Table 2.1). This relatively low employment rate in the euro area, together with a smaller number of hours worked per employed person, is one of the main reasons why GDP per capita is lower than in the United States.

Euro area employment rate is also relatively low

The institutional aspects of labour markets, such as job protection legislation, unemployment benefit systems, the wage formation process

Structural rigidities can hamper labour market efficiency

and the taxation of labour, among others, play a significant role in determining economic developments. For instance, structural rigidities in labour markets reduce the speed at which an economy adjusts to adverse economic shocks. Structural rigidities are therefore typically associated with relatively high and persistent unemployment rates. Moreover, rigidities in the labour market tend to limit the pace at which an economy can grow without fuelling inflationary pressures.

### 2.3 GOVERNMENT SECTOR

**Fiscal policies affect the economy**

Fiscal policies have a significant impact on economic growth and inflation. It is therefore important for monetary authorities to follow fiscal policy developments closely. There are many channels through which fiscal policy affects the economy and prices. The level and composition of government expenditure and revenue, as well as budget deficits and public debt, are key variables in this process.

**Sound fiscal policy needed for macroeconomic stability**

Budgetary policies remain the exclusive competence of the Member States in Stage Three of EMU. However, there are a number of institutional arrangements at the EU level in order to ensure sound public finances (see Box 2.1). In particular, the Treaty's excessive deficit procedure, further developed and clarified in the Stability and Growth Pact, aims to limit the risks to price stability that might otherwise arise from national fiscal policies. For example, an excessive increase in government spending at a time when the economy is already operating at close to full capacity could, by stimulating aggregate demand, lead to bottlenecks and generate inflationary

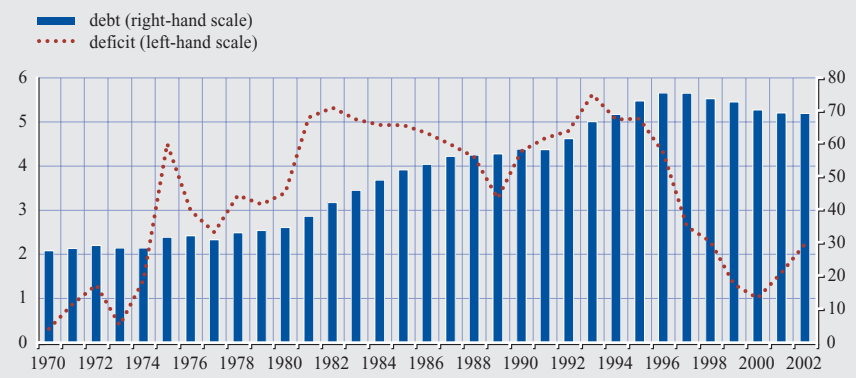
pressures. Fiscal imbalances, with large budget deficits and mounting public debt, have characterised many inflationary episodes in history. Fiscal discipline is therefore a basic component of macroeconomic stability. As well as unbalanced budgets, high levels of government debt can also be detrimental. If a government has to meet sizeable interest expenses every year, the fiscal situation can become unsustainable and this may endanger price stability. High levels of debt may also have adverse effects on the real economy and the financial environment. In particular, excessive recourse to capital markets by governments tends to raise the cost of capital and this may reduce private investment ("crowding out"). Given the potential problems associated with fiscal imbalances, the avoidance of excessive deficits represents an important commitment to maintaining fiscal policies conducive to overall macroeconomic stability.

The general government sector (i.e. central, state and local government, as well as the social security sector) makes up a larger share of the euro area economy than it does in the United States or Japan. Government expenditure in the euro area accounted for 48% of GDP in 2002, while the ratio of general government revenue to GDP was 46%. By contrast, in the United States the general government sector accounted for around 34% of GDP measured in terms of expenditure and around 31% in terms of revenue. In 2002 Japan recorded a ratio of government expenditure to GDP of around 40% and a revenue-to-GDP ratio of 34%, thus indicating a large public deficit (see Table 2.1).

**The relatively large share of government expenditure in euro area GDP...**

**Chart 2.3 General government deficit and debt in the euro area**

(as a percentage of GDP)



Sources: European Commission, OECD and ECB calculations.

Note: Deficit data exclude the proceeds from UMTS licences, which were particularly significant in 2000 (1.1% of GDP).

...reflects the large shares of final government consumption and social transfers to households

The relatively large share of government expenditure in GDP in the euro area reflects in particular the large shares of both final government consumption and social transfers to households. These country differences are partly caused by differences in the distribution of functions between the private and public sectors. Given the characteristics of social security systems in Europe, the age structure of the euro area population also contributes to the high level of government expenditure. As shown in Chart 2.1, the population of the euro area is, on average, older than that of the United States and this affects pension and health expenditure. Unless policy reforms are undertaken in the affected Member States, the situation will be exacerbated in the future by the expected ageing of the population.

Government revenue

With regard to the structure of government revenue, the euro area relies more heavily on social contributions than either the United States or Japan. Moreover, greater use is made of indirect taxation as a source of revenue in the euro area, while the United States relies more heavily than

the euro area on direct taxation as a share of total tax revenue.

Government expenditure exceeded government revenue in the euro area throughout the period from 1970 to 2002. Accordingly, the general government budget balance recorded a deficit in each year throughout that period. The deficit widened to close to 6.0% of GDP in 1993, but then diminished gradually to 1.0% of GDP in 2000 (see Chart 2.3). Thereafter, public finances worsened again in the euro area, causing the deficit to rise to 2.2% of GDP in 2002, with some countries even recording deficits above the 3% of GDP reference value referred to in the Treaty (see Box 2.1).

Fiscal deficit

Turning to general government gross debt, for the euro area as a whole it reached a peak of 75.4% of GDP in 1996/97, after having risen rapidly over the previous two decades. It fell continuously thereafter, to stand at 69.2% of GDP in 2002. The general government gross debt-to-GDP ratio in the United States was somewhat lower, at 59% in 2002, while in Japan the ratio was 154%.

General government gross debt

## Box 2.1 Institutional arrangements at the EU level for sound public finances

While the Treaty institutes a single monetary policy, it maintains national responsibilities for other economic (e.g. fiscal and structural) policies. However, it stipulates that Member States shall “regard their economic policies as a matter of common concern” (Article 99 of the Treaty).

In addition, the Treaty contains several provisions aimed at ensuring sound government finances in Stage Three of EMU, given that fiscal policy remains the responsibility of the national governments. One relates to the excessive deficit procedure, as defined in Article 104 and a protocol annexed to the Treaty. This procedure lays down the conditions that must prevail for a budgetary position to be judged sound. Article 104 decrees that “Member States shall avoid excessive government deficits”. Compliance with this requirement is assessed on the basis of a reference value for the government deficit-to-GDP ratio of 3%, and a reference value for the government debt-to-GDP ratio of 60%. Under conditions defined in the Treaty and further specified in the Pact, such as an annual fall of real GDP of at least 2%, deficit or debt ratios above the reference values may be tolerated, and will not be considered as implying the existence of an excessive deficit. Should the EU Council decide that an excessive deficit exists in a certain country, the excessive deficit procedure provides for further steps to be taken, including sanctions.

The Stability and Growth Pact (SGP) was adopted in 1997, and complements and further clarifies the implementation of the excessive deficit procedure. It consists of the Resolution of the European Council on the SGP, the “Council Regulation on the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies” and the “Council Regulation on speeding up and clarifying the implementation of the excessive deficit procedure”. By agreeing to the SGP, Member States have committed themselves to pursuing the medium-term objective of budgetary positions “close to balance or in surplus”. The idea is that having such positions would allow them to deal with the budgetary impact of normal cyclical fluctuations without breaching the 3% of GDP reference value.

In a framework of multilateral surveillance, euro area participants are obliged to submit stability programmes to the EU Council and the European Commission. The non-participating Member States have to submit convergence programmes. Both of these contain the information needed to assess the budgetary adjustments envisaged over the medium term to reach the close-to-balance or in-surplus position.

An essential complement to these ways of promoting stability-oriented fiscal policies is the Treaty’s “no bail-out” clause. Article 103 (1) of the Treaty states: “The Community shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of any Member State (...). A Member State shall not be liable for or assume the commitments of central governments, regional, local or other public authorities, other bodies governed by public law, or public undertakings of another Member State”. This clause ensures that the responsibility for repaying public debt remains national. It thus encourages prudent fiscal policies at the national level.



Further provisions contributing to fiscal discipline are the prohibitions of monetary financing of budget deficits and of any form of privileged access for the public sector to financial institutions. Article 101 of the Treaty forbids the ECB and the NCBs to provide monetary financing for public deficits using “overdraft facilities or any other type of credit facility with the ECB or with the central banks of the Member States”. Article 102 of the Treaty prohibits any measure that may establish privileged access to financial institutions for governments and Community institutions or bodies. In addition to increasing the incentives to pursue sound public finances and prudent fiscal policies, these provisions contribute to the credibility of the single monetary policy in the pursuit of price stability.

The Treaty also decrees that the EU Council – upon a recommendation from the European Commission – shall adopt Broad Economic Policy Guidelines (BEPGs). These Guidelines provide the framework for the definition of economic policy objectives and orientations for the Member States and the European Community. Insofar as all Member States face broadly the same challenges and economic policy needs, the BEPGs set out a number of general orientations that apply to all Member States. At the same time, reflecting diversity among the countries in terms of economic performance and prospects as well as structures and institutions, the BEPGs also contain country-specific recommendations. In accordance with the Treaty, the BEPGs have to respect the independence of the Eurosystem in the pursuit of its primary objective of maintaining price stability and must not seek to influence its monetary policy.

## 2.4 EXTERNAL TRADE

**Euro area economy much less open than individual euro area countries**

Although the euro area can be significantly affected by developments in the global economy, it is far less open than the economies of the individual euro area countries. This tends to limit the impact of external economic developments and, in particular, that of movements in external prices on domestic euro area prices. However, the euro area is still more open than either the United States or Japan. Euro area exports and imports of goods and services as a share of GDP were significantly higher in 2002 than the corresponding figures for the United States and Japan (see Table 2.1).

**Goods account for the largest share of extra-euro area trade**

As to the composition of trade, goods account for around three-quarters of both euro area imports and euro area exports. Within the goods category, machinery and transport equipment made up almost half of exports in 2002.

They also constituted the largest share of euro area goods imports (see Table 2.3). The second largest component was that of other manufactured articles, which had broadly the same share in both imports and exports. In 2002 chemicals accounted for 14.8% of goods exports but only 10.0% of imports, while, by contrast, the shares of raw materials and energy were considerably larger for imports than for exports. This shows that, in net terms, the euro area tends to import raw materials and intermediate goods and to export processed goods. This in turn reflects the international division of labour and the availability of raw materials in the euro area.

Turning to the geographical distribution of euro area trade, the United Kingdom and the United States are the two largest trading partners of the euro area. Based on average trading flows over the period 1996-

**Geographical distribution of euro area trade**

**Table 2.3 External trade in goods of the euro area in 2002**

(share of total as a percentage)		
	<b>Exports</b>	<b>Imports</b>
<b>Total</b>	100	100
<i>of which:</i>		
Machinery and transport equipment	45.8	36.5
Chemicals	14.8	10.0
Raw materials	1.8	4.5
Energy	2.1	13.7
Food, drink and tobacco	6.0	6.0
Other manufactured articles	26.4	26.0
Other	3.1	3.3

Sources: Eurostat and ECB calculations.

2002, the sum of their weights is above 30% (see Chart 2.4). They were followed by Switzerland, Japan and Sweden, with trade weights of 5.9%, 4.9% and 3.9% respectively. Considering regional aggregates, the bloc constituted by the EU acceding countries accounted for 8.5% of euro area trade, while the corresponding

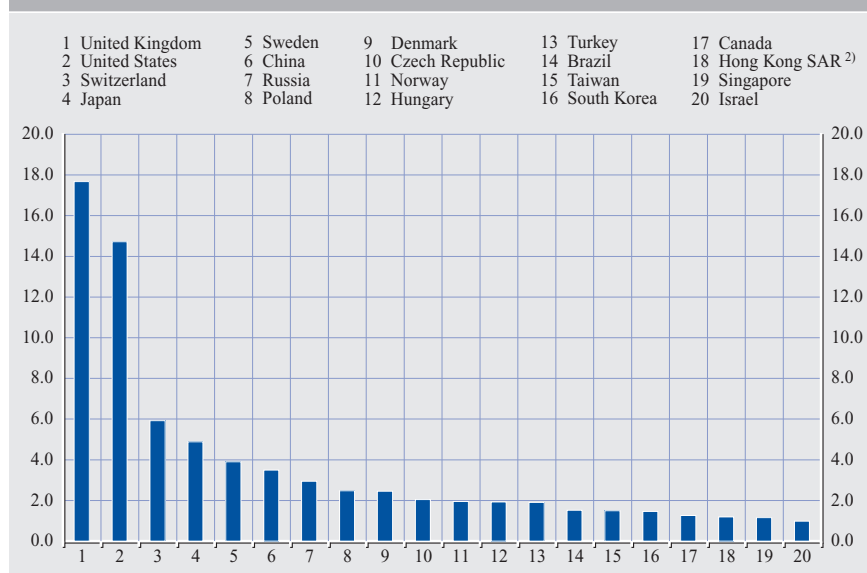
figure for the bloc comprising China and the rest of Asia (excluding Japan) was slightly above 13%.

## 2.5 FINANCIAL STRUCTURE

The financial system performs the essential economic function of channelling funds from those who are

**Indirect and direct finance**

**Chart 2.4 Trade weights<sup>1)</sup> of the euro area's 20 main trading partners**

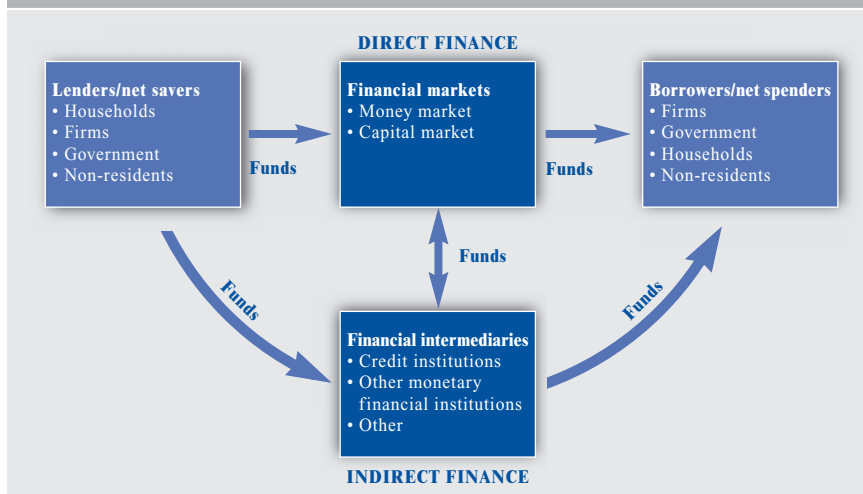


Source: ECB calculations based on Eurostat trade data.

1) Trade weights are the sum of exports and imports expressed as a percentage of total euro area exports and imports and are average figures for the period 1996-2002.

2) Special administrative region.

**Chart 2.5 Functions of financial systems**



net savers (i.e. who spend less than their income) to those who are net spenders (i.e. who wish to spend more than their income). In other words, the financial system allows net savers to lend funds to net spenders. The functions of financial systems are shown schematically in Chart 2.5. The most important lenders are normally households, but firms, the government and foreigners sometimes also find themselves with excess funds and so lend them out. Conversely, the principal borrowers are typically firms and the government, but households and non-residents also sometimes borrow to finance their purchases.

Funds flow from lenders to borrowers via two routes. In direct or market-based finance (the route at the top of Chart 2.5), debtors borrow funds directly from lenders in financial markets by selling them financial instruments, also called securities (such as debt securities and shares), which are claims on the borrower's future income or assets. If financial intermediaries play an additional role

in the channelling of funds, one refers to indirect or bank-based finance (see the bottom of Chart 2.5). Financial intermediaries can be classified into credit institutions, other monetary financial institutions (MFIs) and other financial intermediaries.

In the functioning of the financial system, financial markets and financial intermediaries are not separate entities but are strongly interlinked. For example, funds can flow in both directions between direct and indirect finance (see the middle of Chart 2.5). Funds flow from markets to banks when financial intermediaries issue debt and equity securities to raise funds in order to finance their activities. Conversely, funds flow from banks to markets when, for instance, financial intermediaries purchase securities issued by governments and firms either as own investments or as part of a money market fund. Another example of the interrelationship between financial markets and financial intermediaries is the fact that non-financial corporations that issue securities

often depend on bridge financing – temporary loans to bridge the period before the funds obtained through securities issuance become available – and take advice from financial intermediaries.

**Main financial assets and liabilities of the non-financial sectors**

Before describing in more detail the financial markets where direct finance takes place and the financial intermediaries that are involved in indirect finance, Table 2.4 provides an overview of the main financial assets and liabilities of the non-financial sectors in the euro area in terms of amounts outstanding as at end-2002. The outstanding financial assets and liabilities constitute the “stocks” in the quarterly framework of financial accounts.

The main financial assets shown in Table 2.4 amounted to €14,689 billion (around 208% of annual GDP in the euro area) at the end of 2002. Securities and shares accounted for nearly two-fifths of this figure, as did currency and deposits. Insurance technical reserves, i.e. the provisions of pension funds, insurance and non-financial corporations to cover the claims of policy holders, accounted for the remaining one-fifth.

The main liabilities shown in Table 2.4 amounted to €15,557 billion (220% of GDP) at end-2002. Securities, including quoted shares, comprised around 45% of the financing sources of the non-financial sectors, while loans accounted for more than half. Most of the funding (almost 86% of the liabilities) was at maturities exceeding one year.

**Table 2.4 Financial investment and financing of non-financial sectors in the euro area at end-2002 <sup>1)</sup>**

(outstanding amounts)		
<b>Selected financial assets</b>	<b>EUR billions</b>	<b>%</b>
Total	14,689	100.0
Currency and deposits	5,633	38.3
Currency	341	2.3
Deposits	5,292	36.0
with euro area MFIs	5,101	34.7
with non-MFIs	191	1.3
Securities other than shares	2,071	14.1
Short-term	255	1.7
Long-term	1,816	12.4
Shares <sup>2)</sup>	3,479	23.7
Quoted shares	1,777	12.1
Mutual fund shares	1,702	11.6
o/w money market fund shares	308	2.1
Insurance technical reserves	3,506	23.9
Net equity of households in life insurance and pension fund reserves	3,168	21.6
Prepayments of insurance premiums and reserves for outstanding claims	338	2.3

Source: ECB.

1) Non-financial sectors comprise general government, non-financial corporations and households including non-profit institutions serving households.

2) Excluding unquoted shares.

3) Including non-profit institutions serving households.

**Table 2.4 (cont'd)**

<b>Selected liabilities</b>	<b>EUR billions</b>	<b>%</b>
Total	15,557	100.0
Loans	8,066	51.8
a) taken from		
euro area MFIs	7,131	45.8
other financial intermediaries	935	6.0
b) granted to		
general government	884	5.7
short-term	61	0.4
long-term	824	5.3
non-financial corporations	3,598	23.1
short-term	1,173	7.5
long-term	2,425	15.6
households <sup>3)</sup>	3,584	23.0
short-term	289	1.9
long-term	3,295	21.2
Securities other than shares	4,656	29.9
General government	4,125	26.5
short-term	480	3.1
long-term	3,644	23.4
Non-financial corporations	531	3.4
short-term	140	0.9
long-term	391	2.5
Quoted shares		
issued by non-financial corporations	2,396	15.4
Deposits		
liabilities of central government	188	1.2
Pension fund reserves		
of non-financial corporations	251	1.6

## 2.6 FINANCIAL MARKETS

This section introduces the main features of the money, debt and equity markets in the euro area. Box 2.2 provides an overview of some key terms relating to financial markets.

### The money market

The money market plays a crucial part in the transmission of monetary policy decisions, since changes in monetary policy instruments affect the money market first (see Chapter 4). A deep and integrated money market is a

Integration of  
the money  
market

#### Box 2.2 Financial markets: key terms

Financial markets can be classified according to several criteria, illustrating different essential features of these markets. One possible classification is whether the financial transaction relates to the first purchase of the issue or is a trade between holders of securities (primary or secondary markets). In turn, the secondary market can be organised in two ways. One is to organise exchanges, where buyers and sellers of securities meet in one central location to conduct trades (exchange-traded markets). The other method of organising a secondary market is to have an over-the-counter (OTC) market, in which dealers at different locations who have an inventory of securities stand ready to buy and sell securities over the counter to anyone who is willing to accept their prices.

Another classification relates to the original maturity of the financial contract. Generally a distinction is made between original maturities of less than one year and those of one year or more (money or capital markets). The money market differs somewhat from other financial markets in that it is typically a wholesale interbank market where transactions are large. Moreover, the Eurosystem, through its monetary policy operations, can influence conditions on the money market (see Chapter 4). The ECB is the monopoly supplier of central bank money and, by virtue of this monopoly, the ECB can set the refinancing conditions for credit institutions in the euro area. This, in turn, influences the conditions at which credit institutions and other money market participants transact in the euro area money market.

A final, commonly used classification is between the form of the financial instrument (equity or debt market). The main distinction between equity and debt is that equity does not have to be repaid, whereas debt is a financial claim which usually does have to be repaid (in specific amounts at a certain interest rate).

An important category of financial instruments are derivatives, i.e. financial contracts whose value derives from underlying securities prices, interest rates, foreign exchange rates, market indices or commodity prices. The basic classes of derivatives are futures, options, swaps and forward rate agreements. For example, the holder of a call (put) option has the right, but not the obligation, to buy (sell) a financial instrument (e.g. a bond or share) at a given price at a specified time in the future. Many other derivatives contracts have been developed by combining the basic categories. Derivatives markets assist the functioning of the financial markets, because they improve the pricing and allocation of financial risks.

precondition for an efficient monetary policy since it ensures an even distribution of central bank liquidity and a homogeneous level of short-term interest rates across the single currency area. In the euro area, this precondition was met practically immediately from the start of Stage Three of EMU when the national money markets were successfully integrated into an efficient euro area money market.

#### Role of the payment systems

The rapid integration of the euro area money market has also been supported by developments in the payment systems infrastructure, above all the establishment of the TARGET (Trans-European Automated Real-time Gross settlement Express Transfer) system, which allows the smooth functioning of the settlement of cross-border payments. The TARGET system interconnects the euro real-time gross settlement systems operated by the EU NCBs and the ECB payment mechanism. The direction, management and control of TARGET fall within the competence of the Governing Council of the ECB.

#### Unsecured parts of the money market

There are various so-called “cash” segments in the euro area money market. The most important of these segments is the unsecured market. The unsecured market is mainly devoted to the management of the liquidity needs of banks and, hence, the unsecured transactions are strongly concentrated on the overnight maturity. There are two important reference rates for the unsecured money market, the EONIA (euro overnight index average) and the EURIBOR (euro interbank offered rate), which together provide uniform price references for maturities from overnight to one year.

The other main cash segments of the money market are the repo market and the market for swaps against foreign currencies. These markets are known as secured markets, since lending is done against assets acting as collateral. The importance of the repo market varies across the euro area. Repo transactions and swaps against foreign currencies are mainly concentrated on maturities of up to one month.

#### Secured parts of the money market

In addition to the cash segments mentioned above, the euro area money market also includes derivatives segments. Interest rate swap markets and futures markets are the most important derivative markets. The most active instruments in these markets are the EONIA swaps and EURIBOR futures.

#### Derivatives markets

Looking at the development of different segments of the euro area money market, the unsecured market was characterised from the outset by a high degree of activity and liquidity. In contrast, the repo market developed relatively slowly in 1999 and 2000, but then experienced very rapid growth and had surpassed the turnover in the unsecured market by 2002. Unsecured transactions accounted for 37% of the total cash market turnover in the euro area in 2002, with the repo market accounting for around 46%. The integration of the repo market has increased in recent years and indicators have pointed towards a heightened level of cross-border activity as counterparties have increased their use of collateral from other euro area countries. However, despite considerable progress, several technical factors, such as differences in laws, documentation, settlement

#### Development of the money market from January 1999 to June 2003



**Table 2.5 Amounts outstanding of euro-denominated short-term debt securities issued by euro area residents**

(end of year; EUR billions; (% of GDP))						
	1990	1995	1998	2000	2001	2002
Total	475 (11.6)	607 (11.4)	533 (9.1)	578 (9.0)	612 (8.9)	696 (9.9)
MFIs	104 (2.6)	168 (3.2)	165 (2.8)	243 (3.8)	241 (3.5)	281 (4.0)
Non-monetary financial corporations	4 (0.1)	10 (0.2)	9 (0.2)	5 (0.1)	3 (0.0)	4 (0.1)
Non-financial corporations	44 (1.1)	34 (0.6)	46 (0.8)	86 (1.3)	96 (1.4)	85 (1.2)
Public sector	322 (7.9)	396 (7.5)	313 (5.3)	244 (3.8)	272 (4.0)	325 (4.6)

Source: ECB.

standards and the diversity of market practices across the euro area, have so far prevented the full development of an area-wide repo market. In the derivatives segment, the most rapid developments since 1999 have been in the EONIA swap market. This very active, deep and liquid market has no equivalent outside the euro area.

### Debt securities markets

The money market in a broader sense also includes the market for short-term securities. The amount outstanding of euro-denominated short-term debt securities issued by euro area residents totalled almost 10% of GDP at the end of 2002, which was slightly lower than the 1990 figure (see Table 2.5). The relative importance of the types of issuer did, however, change over the intervening 12 years. In 1990 the most important issuer was the public sector (almost 70% of the total market), while in 2002 the amount outstanding of euro-denominated short-term debt securities issued by the private sector, notably MFIs, was slightly larger than that issued by the public sector (53% compared with 47%).

Of more importance are the euro-denominated long-term debt securities issued by euro area residents. The amount outstanding of these debt instruments equalled around 96% of GDP at the end of 2002, having increased from around 57% of GDP at the end of 1990 (see Table 2.6). The public sector (central government and other general government) is the most important long-term debt issuer in terms of volume. At the end of 2002 the amount outstanding of euro-denominated long-term debt securities issued by the public sector was more than 50% of the total amount issued. The second largest group of issuers in terms of the amount outstanding was the MFI sector (36% of the market total in 2002). The amount outstanding of euro-denominated long-term debt securities issued by non-financial corporations and non-monetary financial corporations was around 13% of the market total at the end of 2002. Much of the growth in this area has taken place since the start of Stage Three of EMU and has been driven in particular by non-monetary financial corporations. Issuance by this latter

...when compared with long-term debt securities

Lower relative importance of euro-denominated short-term debt securities...

**Table 2.6 Amounts outstanding of euro-denominated long-term debt securities issued by euro area residents**

(end of year; EUR billions; (% of GDP))						
	1990	1995	1998	2000	2001	2002
Total	2,307 (56.5)	4,129 (77.8)	5,088 (86.5)	5,903 (91.5)	6,410 (93.7)	6,751 (95.6)
MFIs	961 (23.5)	1,467 (27.6)	1,850 (31.4)	2,178 (33.7)	2,324 (34.0)	2,402 (34.0)
Non-monetary financial corporations	54 (1.3)	83 (1.6)	121 (2.1)	254 (3.9)	365 (5.3)	472 (6.7)
Non-financial corporations	152 (3.7)	224 (4.2)	221 (3.8)	287 (4.5)	350 (5.1)	380 (5.4)
Public sector	1,140 (27.9)	2,354 (44.3)	2,896 (49.2)	3,183 (49.3)	3,370 (49.3)	3,497 (49.5)

Source: ECB.

sector has tended to be concentrated in a few countries whose tax systems offer corporations a cheaper source of funding via “special-purpose vehicles” (SPVs) and other financing agencies helping them to raise capital on the corporate bond market.

Debt securities financing in the euro area is small compared with the United States

Financing through the issuance of debt securities is smaller in the euro area than in the United States and Japan. The amounts outstanding at the end of 2002 were 105% of GDP in the euro area, compared with 154% and 160% of GDP in the United States and Japan respectively (see Table 2.7). The high figure for Japan can be explained primarily by the strong growth in government debt securities that has been observed in the context of a prolonged period of weak economic growth since the early 1990s. Looking at the non-financial corporate sector, the amount outstanding of debt securities issued by non-financial corporations in the euro area was around 7% of GDP at the end of 2002, while it totalled around 23% and 18% of GDP in the United States and Japan respectively.

Despite the significant growth in the euro area debt securities market, some market segments, such as those for debt with a low credit rating or unrated debt, have remained relatively underdeveloped. Compared with the United States, relatively few euro area corporations had credit ratings in 2002, and this restricted their access to the corporate bond market.

Some segments in euro area debt securities market little developed

### Equity market

Turning to the equity market, a commonly used indicator of its importance is the market capitalisation of stocks traded in terms of GDP. The euro area stock market capitalisation increased from 21% of GDP at the end of 1990 to 47% of GDP at the end of 2002 (see Table 2.8). As can be seen from Table 2.8, however, the stock market capitalisation was as high as 87% of GDP at end-2000. These strong movements in stock market capitalisation were caused by a period of strong increases in stock prices up to early 2000 which was then followed by a significant fall.

Euro area stock market capitalisation growing...

**Table 2.7 Amounts outstanding of debt securities denominated in national currency issued by residents in the euro area, the United States and Japan at end-2002**

(as a percentage of GDP)

	Total	Issued by financial corporations	Issued by non-financial corporations	Issued by general government
Euro area	105.4	44.7	6.6	54.1
United States	153.7	88.1	22.8	42.8
Japan	160.1	27.5	17.9	114.8

Sources: ECB and BIS.

...but smaller than in the United States

Total stock market capitalisation in the euro area remained significantly smaller than in the United States, and the gap between stock market capitalisation in terms of GDP in the United States and the euro area even widened from around 30 percentage points in 1990 to around 60 percentage points in 2002. By contrast, in Japan stock market capitalisation declined from 90% of GDP in 1990 to 58% of GDP in 2002 (mostly reflecting significant falls in stock prices over this period).

Growing number of companies listed on euro area stock markets

Another indication of the growing importance of the equity market in the euro area is provided by statistics on the number of listed companies. This number rose from 4,276 at the end of 1990 to 6,271 at the end of 2002 (see Table 2.9). As a comparison, the number of listed companies in the United States and Japan at

the end of 2002 was 6,586 and 2,153 respectively.

Since the introduction of the euro there have been many initiatives to form alliances or merge the activities of stock exchanges of individual euro area countries. Stock market participants also increasingly seem to be taking into account the economic factors common to the euro area as a whole. One clear indication of the increasing integration of euro area stock markets is the widespread focus on a range of euro area-wide stock market indices, such as the Dow Jones EURO STOXX index.

Increasing integration of euro area stock markets

## 2.7 FINANCIAL INTERMEDIARIES

### Credit institutions and other monetary financial institutions (MFIs)

The main financial intermediaries in the euro area are credit institutions.

Definition of credit institutions and MFIs

**Table 2.8 Stock market capitalisation in the euro area, the United States and Japan**

(end of year, as a percentage of GDP)

	1990	1995	1998	2000	2001	2002
Euro area	21	28	76	87	72	47
United States	53	92	141	153	136	104
Japan	90	73	54	67	56	58

Source: World Federation of Exchanges.

**Table 2.9 Number of domestic and foreign companies listed on stock markets in the euro area, the United States and Japan**

(end of year)	1990	1995	1998	2000	2001	2002
Euro area	4,276	5,106	4,546	5,516	6,357	6,271
United States	6,765	8,160	8,449	7,851	7,069	6,586
Japan	1,752	1,791	1,890	2,096	2,141	2,153

Source: World Federation of Exchanges.

Credit institutions are defined in two Banking Coordination Directives<sup>6</sup> and are subject to common EU-wide supervisory standards. Credit institutions are the counterparties for central bank monetary policy operations (see Chapter 4). Owing to the fact that they grant credit to households and firms, inter alia on the basis of credit received from the central bank, they are crucial to the transmission of monetary policy impulses to the economy (see Chapter 3). The term “monetary financial institution” was created because an increasing number of non-credit institutions, notably money market funds<sup>7</sup>, are performing activities and offering products that were traditionally the preserve of banks.

Number of MFIs declined owing to financial consolidation

Credit institutions accounted for 81% of all euro area MFIs at the end of 2002 (see Table 2.10). Money market funds were the second largest MFI category. At the end of 2002 there were 8,544 MFIs in the euro area. This figure reflects the large number of

savings and cooperative banks – often operating only at a local level – and specialised credit institutions in several countries. The number of MFIs declined markedly between 1998 and 2002, reflecting the ongoing consolidation process in the European banking industry. The trend towards consolidation in the credit institution sector is a response to changing market conditions, driven by a number of factors, such as technological developments, deregulation, liberalisation and globalisation. The introduction of the euro has probably been fuelling these developments by creating more transparency across national borders.

The ECB and the NCBs collect monthly and quarterly statistics from the MFIs in the euro area and compute both an aggregated and a consolidated MFI balance sheet at the euro area level. The aggregated balance sheet of the MFI sector is the sum of the harmonised balance sheets of all the MFIs resident in the euro area. The aggregated balance sheet presents

Aggregated and consolidated balance sheet of MFIs

<sup>6</sup> A “credit institution” refers to any institution falling under the definition contained in Article 1 (1) of Directive 2000/12/EC of the European Parliament and of the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions, as amended by Directive 2000/28/EC of the European Parliament and of the Council of 18 September 2000, i.e. “an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credit for its own account”. See glossary.

<sup>7</sup> Money market funds are defined as collective investment undertakings of which the units are, in terms of liquidity, close substitutes for deposits and which primarily invest in money market instruments and/or in other transferable debt instruments with a residual maturity of up to and including one year, and/or in bank deposits, and/or which offer a rate of return approaching the interest rates on money market instruments.

**Table 2.10 Number of euro area monetary financial institutions**

(end of year)	1998	2000	2001	2002
Credit institutions	8,320	7,464	7,218	6,906
Money market funds	1,516	1,604	1,631	1,620
Central banks and other institutions	20	20	19	18
All MFIs	9,856	9,088	8,868	8,544

Source: ECB.

information on inter-MFI positions on a gross basis. It includes cross-border inter-MFI activities both within the euro area and with regard to the rest of the world. This information is useful for assessing the integration of financial systems and the importance of the interbank market. The consolidated balance sheet of the MFI sector is obtained by netting positions between MFIs in the euro area on the aggregated balance sheet. The consolidated balance sheet provides the basis for the regular analysis of monetary and credit developments in the euro area, including monetary aggregates (see Box 2.3).

Chart 2.7 shows the composition of the consolidated balance sheet of the euro area MFIs (including the Eurosystem) at the end of 2002.

Deposits accounted for 45% of total liabilities, while other important liability items were external liabilities and debt securities, which amounted to 19% and 13% respectively of total MFI liabilities. Loans represented the largest share of total assets (56% at the end of 2002). External assets made up 20% of total MFI assets, whereas lending in the form of debt securities, shares and other equity accounted for 15%.

Bank deposits in the euro area amounted to 81% of GDP at end-2002 (see Table 2.12). This was more than in the United States (44% of GDP) and less than in Japan (119% of GDP). At the same time, bank loans in the euro area totalled 108% of GDP, while for the United States and Japan this ratio was 51% and 101% respectively.

**Bank deposits and loans in the euro area, the United States and Japan**

**Deposits and loans are the most important MFI balance sheet items**

### Box 2.3 Monetary aggregates

The starting-point for the definition of euro area monetary aggregates is the consolidated balance sheet of the MFI sector. In general, the appropriate definition of a monetary aggregate largely depends on the purpose for which the aggregate is intended. Given that many different financial assets are substitutable, and that the nature and characteristics of financial assets, transactions and means of payment are changing over time, it is not always clear how money should be defined and which financial assets belong to which definition of money. For these reasons, central banks usually define and monitor several monetary aggregates.

The ECB's definitions of euro area monetary aggregates are based on a harmonised definition of the money-issuing sector and the money-holding sector as well as of harmonised categories of MFI liabilities. The money-issuing sector comprises MFIs

**Table 2.11 Definitions of euro area monetary aggregates**

Liabilities <sup>1)</sup>	M1	M2	M3
Currency in circulation	X	X	X
Overnight deposits	X	X	X
Deposits with an agreed maturity of up to 2 years		X	X
Deposits redeemable at notice of up to 3 months		X	X
Repurchase agreements			X
Money market fund shares/units			X
Debt securities issued with a maturity of up to 2 years			X

Source: ECB.

1) Monetary liabilities of MFIs and central government (post office, treasury) vis-à-vis non-MFI euro area residents excluding central government.

resident in the euro area. The money-holding sector includes all non-MFIs resident in the euro area excluding the central government sector. Even though the central government sector is not considered to be part of the money-issuing sector, central government liabilities of a monetary nature (e.g. deposits held by households with the post office) are included as a special item in the definition of monetary aggregates because they are highly liquid.<sup>1</sup>

Based on conceptual considerations and empirical studies, and in line with international practice, the Eurosystem has defined a narrow (M1), an “intermediate” (M2) and a broad monetary aggregate (M3). These aggregates differ with regard to the degree of liquidity (as assessed on the basis of the criteria of transferability, convertibility, price certainty and marketability) of the assets they include. Table 2.11 above sets out the definitions of euro area monetary aggregates.

M1 comprises currency, i.e. banknotes and coins, and overnight deposits. These deposits can immediately be converted into currency or used for cashless payments.

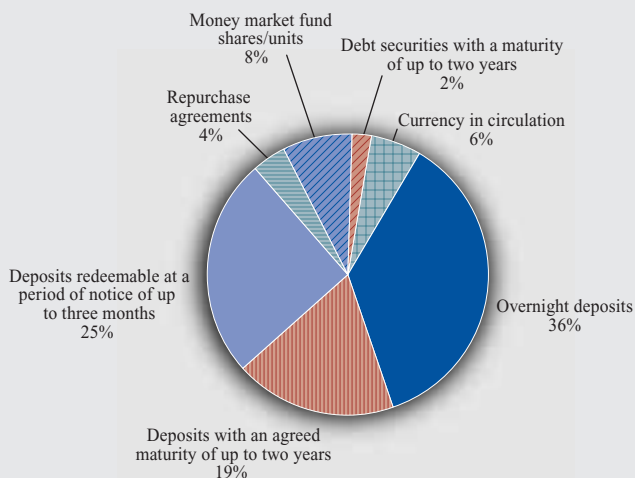
M2 comprises M1 and, in addition, deposits with an agreed maturity of up to and including two years or redeemable at a period of notice of up to and including three months. These deposits can be converted into components of narrow money, but some restrictions may apply, such as the need for advance notification, penalties and fees.

M3 comprises M2 and certain marketable instruments issued by the resident MFI sector. These marketable instruments are repurchase agreements, money market fund shares/units and debt securities with a maturity of up to and including two years (including money market paper). A high degree of liquidity and price certainty make these instruments close substitutes for deposits. As a result of their inclusion, broad money is less affected by substitution between various liquid asset categories and is more stable than narrower definitions of money (see also Chapter 3).

Holdings by euro area residents of liquid assets denominated in foreign currencies can be close substitutes for euro-denominated assets. Therefore, the monetary aggregates include such assets if they are held with MFIs located in the euro area.

<sup>1</sup> Deposits held by the central government with the MFI sector are excluded because the central government is not included in the money-holding sector, given that its money holdings are not closely related to spending plans.

**Chart 2.6 Percentage shares of components of M3 at end-2002**



Source: ECB.

As the definition of monetary aggregates adopted by the ECB only includes liabilities of MFIs located in the euro area vis-à-vis euro area residents, holdings by foreign residents of i) short-term deposits with euro area MFIs, ii) shares/units issued by money market funds located in the euro area, and iii) debt securities issued with a maturity of up to and including two years by MFIs located in the euro area are excluded. Currency in circulation is entirely included in the monetary aggregates, irrespective of whether it is held by euro area residents or non-residents, given the difficulty of deriving accurate and timely measures of the amounts of banknotes and coins held by non-residents.

Chart 2.6 illustrates the relative shares of the components of M3 in December 2002. Overnight deposits accounted for the largest share, namely 36% of M3. The share in M3 of deposits redeemable at a period of notice of up to and including three months was 25%, while that of deposits with an agreed maturity of up to and including two years was 19%. Money market fund shares/units amounted to 8% of M3, and currency in circulation was 6%. Finally, repurchase agreements and debt securities issued with an initial maturity of up to and including two years accounted for 4% and 2% of M3 respectively.

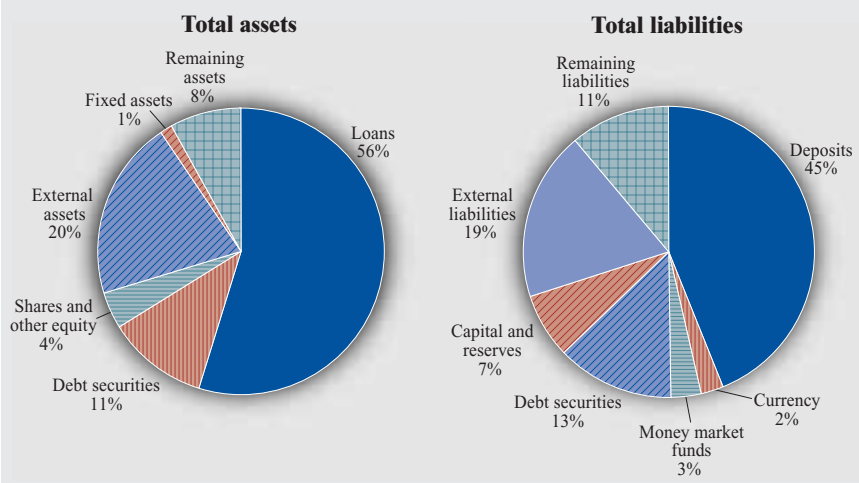
These figures are an indication of the importance of financial intermediation through banks in the euro area, in particular when compared with the United States.

In both the euro area and the United States bank loans to non-financial

corporations were around 40% of GDP at the end of 2002. By contrast, bank loans to non-financial corporations in Japan amounted to 64% of GDP at the end of 2002. This reflects the significance of capital markets in corporate finance decisions in the euro area and the United States, whereas in

**Chart 2.7 Composition of the consolidated balance sheet of euro area MFIs (including the Eurosystem) at end-2002**

(percentage shares in the balance sheet total)



Source: ECB.

Japan the non-financial corporate sector makes relatively greater use of bank loans as a source of finance.

### Other financial intermediaries

Still minor role of non-MFIs

Indirect finance to the public and private sectors is not only provided by MFIs, but also by other financial intermediaries such as insurance corporations and pension funds, financial auxiliaries, mutual funds, securities and derivatives dealers, and financial corporations engaged in lending. One of the key differences compared with credit institutions is the lack of deposits on the liabilities

side of the balance sheets of these institutions. Available estimates show that these other financial intermediaries became increasingly active in the 1990s, but still play a minor role compared with MFIs. At the end of 2002 the assets of insurance companies, mutual funds and pension funds in the euro area were equivalent to 90% of GDP, while the assets of MFIs equalled 267% of GDP. Nevertheless, the total amount of assets of these other financial intermediaries in the euro area has grown substantially, in particular since the late 1990s.

**Table 2.12 Bank deposits and loans in the euro area, the United States and Japan at end-2002**

(as a percentage of GDP)

	Bank deposits	Bank loans	Bank loans to non-financial corporations
Euro area	81.3	107.9	42.1
United States	44.0	51.2	39.3
Japan	118.8	101.0	63.9

Sources: ECB, Federal Reserve and Bank of Japan.





## 3 THE ECB'S MONETARY POLICY STRATEGY

This chapter describes the ECB's monetary policy strategy, i.e. the ECB's general approach to achieving its primary objective of maintaining price stability. The first section focuses on the reasons underlying the assignment of this objective to monetary policy. The second section summarises the key features of the monetary policy transmission mechanism (i.e. the way in which monetary policy influences price developments) and discusses their implications for the conduct of monetary policy. The final sections then explain the central elements of the ECB's strategy in greater detail.

### 3.1 THE ROLE OF MONETARY POLICY AND THE BENEFITS OF PRICE STABILITY

#### What monetary policy can and cannot do

By controlling the supply of the monetary base...

The way in which monetary policy exerts its influence on the economy can be explained as follows. The central bank is the sole issuer of banknotes and sole provider of bank reserves, i.e. it is the monopoly supplier of the monetary base. By virtue of this monopoly, the central bank is able to influence money market conditions and steer short-term interest rates.

...the central bank can influence economic developments

In the short run, a change in money market interest rates induced by the central bank sets in motion a number of mechanisms and actions by economic agents, ultimately influencing developments in economic variables such as output or prices. This process – also known as the monetary policy transmission mechanism – is complex and, while its broad features are understood, there is no unique and undisputed view of all the aspects involved.

In the long run, changes in the money supply will affect the general price level...

However, it is a widely accepted proposition in the economic profession that, in the long run, i.e. after all adjustments in the economy

have worked through, a change in the quantity of money in the economy (all other things being equal) will be reflected in a change in the general level of prices and will not induce permanent changes in real variables such as real output or unemployment. A change in the quantity of money in circulation ultimately represents a change in the unit of account (and thereby of the general price level) which leaves all other variables unchanged, in much the same way as changing the standard unit used to measure distance (e.g. switching from kilometres to miles) would not alter the actual distance between two locations.

This general principle, referred to as “the long-run neutrality” of money, underlies all standard macroeconomic thinking and theoretical frameworks. Real income or the level of employment in the economy are, in the long run, essentially determined by real (supply-side) factors. These are technology, population growth, the preferences of economic agents and all aspects of the institutional framework of the economy (notably property rights, tax policy, welfare policies and other regulations determining the flexibility of markets and incentives to

...but not the level of real income or employment

supply labour and capital and to invest in human capital).

**Inflation is ultimately a monetary phenomenon**

In the long run, the central bank cannot influence economic growth by changing the money supply. Related to this is the assertion that inflation is ultimately a monetary phenomenon. Indeed, prolonged periods of high inflation are typically associated with high monetary growth. While other factors (such as variations in aggregate demand, technological changes or commodity price shocks) can influence price developments over shorter horizons, over time their effects can be offset by some degree of adjustment of the money stock. In this sense, the longer-term trends of prices or inflation can be controlled by central banks.

**Price stability enhances the potential for economic growth**

The close association between the growth of money and inflation in the economy and the long-run neutrality of monetary policy have been confirmed by a very large number of economic studies, covering various periods and countries. At the same time, both empirical and theoretical research has confirmed that the costs of inflation (and deflation) are substantial and it is today widely acknowledged that price stability contributes to increasing economic welfare and the growth potential of an economy.

### **The benefits of price stability**

**Price stability supports higher living standards by contributing to...**

The objective of price stability refers to the general level of prices in the economy and implies avoiding both prolonged inflation and deflation. There are several ways in which price stability contributes to achieving high levels of economic activity and employment.

First, price stability makes it easier for people to recognise changes in relative prices, since such changes are not obscured by fluctuations in the overall price level. As a result, firms and consumers do not misinterpret general price level changes as being relative price changes and can make better informed consumption and investment decisions. This then allows the market to allocate resources more efficiently. By helping the market to guide resources to where they can be used most productively, price stability increases the welfare of households and thus the productive potential of the economy.

**...improving the transparency of relative prices,...**

Second, if creditors can be sure that prices will remain stable in the future, they will not demand an “inflation risk premium” to compensate them for the risks associated with holding nominal assets over the longer term. By reducing such risk premia in the real interest rate, monetary policy credibility contributes to the efficiency with which the capital markets allocate resources and thus increases the incentives to invest. This in turn fosters economic welfare.

**...reducing inflation risk premia in interest rates,...**

Third, the credible maintenance of price stability also makes it less likely that individuals and firms will divert resources from productive uses in order to hedge against inflation. For example, in a high-inflation environment there is an incentive to stockpile real goods since they retain their value better in such circumstances than money or certain financial assets. However, stockpiling goods is not an efficient investment decision, and therefore hinders economic growth.

**...avoiding unnecessary hedging activities,...**

...reducing distortions of tax systems and social security systems,...

Fourth, tax and welfare systems can create perverse incentives which distort economic behaviour. In most cases, these distortions are exacerbated by inflation or deflation, as fiscal systems do not normally allow for the indexation of tax rates and social security contributions to the inflation rate. Price stability eliminates the real costs entailed when inflation exacerbates the distortionary impact of tax and social security systems.

...increasing the benefits of holding cash...

Fifth, inflation acts as a tax on holdings of cash. This reduces household demand for cash and consequently generates higher transaction costs (e.g. shoe-leather costs).

...and preventing the arbitrary redistribution of wealth and income

Sixth, maintaining price stability prevents the considerable and arbitrary redistribution of wealth and income that arises in inflationary as well as deflationary environments, where price trends change in unpredictable ways (e.g. redistribution effects from creditors to debtors). Typically, the weakest groups of society often suffer the most from inflation, as they have only limited possibilities for hedging against it. An environment of stable prices thus helps to maintain social cohesion and stability. As several examples in the twentieth century have demonstrated, high rates of inflation or deflation often create social and political instability.

By maintaining price stability the central bank contributes to broader economic goals

All these arguments suggest that a central bank that maintains price stability makes a substantial contribution to the achievement of broader economic goals, such as higher standards of living, high levels of economic activity and better employment prospects. This

conclusion is supported by economic evidence which – for a wide variety of countries, methodologies and periods – demonstrates that economies with lower inflation appear, on average, to grow more rapidly in real terms in the long run.

### Assignments of the Treaty

The basic and widely shared principles outlined above are reflected in the way in which the Treaty has allocated objectives and responsibilities to the different policy-making authorities. The primary objective of the Eurosystem, and of the single monetary policy for which it is responsible, is specified by the Treaty as the maintenance of price stability. Moreover, and “without prejudice to the objective of price stability”, the Eurosystem shall also “support the general economic policies in the Community with a view to contributing to the achievement of the objectives of the Community” which include a “high level of employment” and “sustainable and non-inflationary growth” (see Chapter 1).

The Treaty assigns overriding importance to the Eurosystem’s objective of maintaining price stability for good economic reasons. Since monetary policy can ultimately only influence the price level in the economy, price stability is its only natural objective. Assigning monetary policy an objective for real income or employment would have been problematic since, apart from the positive impact of price stability, monetary policy has no scope for exerting any lasting influence on real variables. It is the task of other economic actors, notably those responsible for fiscal and structural policies, to enhance the growth

The assignments of the Treaty reflect these general principles...

...by setting price stability as the primary objective of monetary policy

potential of the economy. The clear hierarchy of objectives that the Treaty establishes for the Eurosystem reflects decades of practical experience and a large number of economic studies which suggest that monetary policy will contribute most to improving economic prospects and raising the living standards of citizens by maintaining price stability in a lasting way.

However, in pursuing its primary objective, the Eurosystem needs to take into account the Community's broader economic goals

At the same time, the Treaty's assignments imply that, in the actual implementation of monetary policy decisions aimed at maintaining price stability, and without prejudice to the achievement of this objective, the Eurosystem should also take into account the broader economic goals of the Community. In particular, given that monetary policy can affect real activity in the shorter term, the ECB typically should avoid generating excessive fluctuations in output and employment if this is in line with the pursuit of its primary objective.

### 3.2 THE TRANSMISSION MECHANISM OF MONETARY POLICY

Transmission mechanism and transmission channels

As the Governing Council of the ECB is responsible for taking monetary policy decisions aimed at the maintenance of price stability, it is crucial that the ECB develops a view about how monetary policy affects developments in the price level. The process through which monetary policy decisions affect the economy in general, and the price level in particular, is known as the transmission mechanism of monetary policy. The individual links through which monetary policy impulses (typically) proceed are known as transmission channels.

### Channels of monetary transmission

The main channels of monetary policy transmission are set out in a simplified, schematic form in the left-hand part of Chart 3.1.

The transmission process...

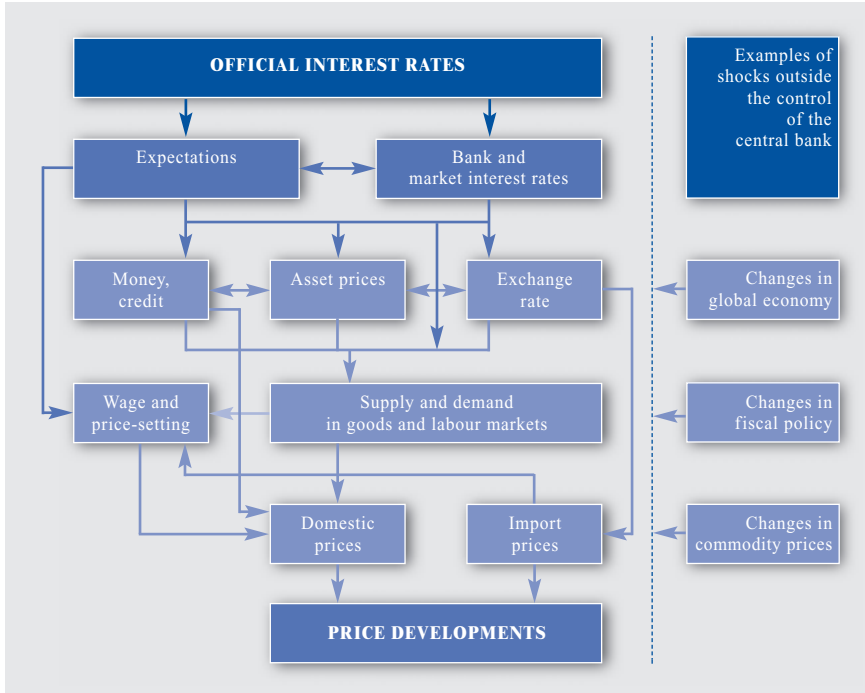
The (long) chain of cause and effect linking monetary policy decisions with the price level starts with a change in the official interest rates set by the central bank on its own operations. In these operations, the central bank typically provides funds to banks (see Chapter 4 for a detailed description of the Eurosystem's monetary policy instruments). The banking system demands money issued by the central bank ("base money") to meet the public demand for currency, to clear interbank balances and to meet the requirements for minimum reserves that have to be deposited with the central bank. Given its monopoly over the creation of base money, the central bank can fully determine the interest rates on its operations. Since the central bank thereby affects the funding cost of liquidity for banks, banks need to pass on these costs when lending to their customers.

...starts with a change in official interest rates...

Through this process, the central bank can exert a dominant influence on money market conditions and thereby steer money market interest rates. Changes in money market rates in turn affect other interest rates, albeit to varying degrees. For example, changes in money market rates have an impact on the interest rates set by banks on short-term loans and deposits. In addition, expectations of future official interest rate changes affect longer-term market interest rates, since these reflect expectations of the future evolution of short-term interest rates. However, the impact of money

...affecting market interest rates...

**Chart 3.1 A stylised illustration of the transmission mechanism from interest rates to prices**



market rate changes on interest rates at very long maturities (e.g. 10-year government bond yields, long-term bank lending rates) is less direct. Those rates depend to a large extent on market expectations for long-term growth and inflation trends in the economy. In other words, changes in the central bank's official rates do not normally affect these longer-term rates unless they were to lead to a change in market expectations concerning long-term economic trends.

...and asset prices...

Because of the impact it has on financing conditions in the economy – but also because of its impact on expectations – monetary policy can affect other financial variables such as asset prices (e.g. stock market prices) and exchange rates.

Changes in interest rates and financial asset prices in turn affect the saving, spending and investment decisions of households and firms. For example, all other things being equal, higher interest rates tend to make it less attractive for households or companies to take out loans in order to finance their consumption or investment. Higher interest rates also make it more attractive for households to save their current income rather than spend it, since the return on their savings is increased. Furthermore, changes in official interest rates may also affect the supply of credit. For example, following an increase in interest rates, the risk that some borrowers cannot safely pay back their loans may increase to a level such that banks will not grant a loan to these borrowers. As a consequence, such

...affecting credit, savings and investment decisions,...

borrowers, households or firms, would be forced to postpone their consumption or investment plans.

Finally, movements in asset prices may affect consumption and investment via income and wealth effects. For example, as equity prices rise, share-owning households become wealthier and may choose to increase their consumption. Conversely, when equity prices fall, households may well reduce consumption. An additional way in which asset prices can impact on aggregate demand is via the value of collateral that allows borrowers to get more loans and/or to reduce the risk premia demanded by lenders/banks. Lending decisions are often influenced to a large extent by the amount of collateral. If the value of collateral falls then loans will become more expensive and may even be difficult to obtain at all, with the result that spending will fall.

...leading to a change in aggregate demand and prices

As a consequence of changes in consumption and investment, the level of domestic demand for goods and services relative to domestic supply will change. When demand exceeds supply, all other things being equal, upward pressure on prices is likely to result. Moreover, changes in aggregate demand may translate into tighter or looser conditions in labour and intermediate product markets, and these in turn can affect wage and price-setting in the respective market.

Effects of exchange rate changes on prices

Changes in the exchange rate will normally affect inflation in three ways. First, exchange rate movements may directly affect the domestic price of imported goods. If the exchange rate appreciates, the price of imported goods tends to fall, thus helping to reduce inflation directly, insofar as

these products are directly used in consumption. Second, if these imports are used as inputs into the production process, lower prices for inputs might, over time, feed through into lower prices for final goods. Third, exchange rate developments may also have an effect via their impact on the competitiveness of domestically produced goods on international markets. If an appreciation in the exchange rate makes domestically produced goods less competitive in terms of their price on world markets, this tends to constrain external demand and thus reduce overall demand pressure in the economy. All other things being equal, an appreciation of the exchange rate would thus tend to reduce inflationary pressures. The strength of exchange rate effects depends on how open the economy is to international trade. Exchange rate effects are in general less important for a large, relatively closed currency area like the euro area than for a small open economy. Clearly, financial asset prices depend on many other factors in addition to monetary policy, and changes in the exchange rate are also often dominated by these factors.

Other channels through which monetary policy can influence price developments mainly work by influencing the private sector's longer-term expectations. If a central bank enjoys a high degree of credibility in pursuing its objective, monetary policy can exert a powerful direct influence on price developments by guiding economic agents' expectations of future inflation and thereby influencing their wage and price-setting behaviour. The credibility of a central bank to maintain price stability in a lasting manner is crucial in this

Anchoring inflation expectations

respect. Only if economic agents believe in the central bank's ability and commitment to maintain price stability will inflation expectations remain firmly anchored to price stability. This, in turn, will influence wage and price-setting in the economy given that, in an environment of price stability, wage and price-setters will not have to adjust their prices upwards for fear of higher inflation in the future. In this respect, credibility facilitates the task of monetary policy.

Transmission is characterised by long, variable and uncertain time lags...

The dynamic process outlined above involves a number of different mechanisms and actions by economic agents at various stages of the process. As a result, monetary policy action usually takes a considerable time to affect price developments. Furthermore, the size and strength of the different effects can vary according to the state of the economy, which makes the precise impact difficult to estimate. Taken together, central banks typically see themselves confronted with long, variable and uncertain lags in the conduct of monetary policy.

...and is influenced by exogenous shocks

Identifying the transmission mechanism of monetary policy is complicated by the fact that, in practice, economic developments are continuously influenced by shocks from a large variety of sources. For instance, changes in oil or other commodity prices or in administered prices can have a short-term, direct impact on inflation. Similarly, developments in the world economy or in fiscal policies may influence aggregate demand and thereby price developments. Furthermore, financial asset prices and exchange rates depend on many other factors in

addition to monetary policy. Monetary policy therefore needs not only to monitor the transmission of monetary policy changes but also to take into account all other developments relevant for future inflation in order to avoid these having any impact on longer-term inflation trends and expectations in a way that is inconsistent with price stability. The required path of monetary policy is always dependent on the nature, size and duration of the shocks hitting the economy, and it is a permanent challenge for the central bank to understand which factors are driving price trends in order to find the appropriate monetary policy reaction.

Central banks are, thus, typically confronted with a complex web of economic interactions. Given this complexity, they often also take into account some simple rules of thumb to guide or cross-check their action. One such rule is based on the fact that inflation is always a monetary phenomenon in the medium to long term. This rule recommends that central banks be generally aware of monetary developments in order to assess inflation trends.

Complexity of the transmission process

Although the use of empirical methods for the quantification of the transmission mechanism and its channels has proved to be of great help in recent decades, the results have shed only a partial light on the complex process involved. In addition, the ECB faces a level of uncertainty that may even be somewhat greater than that faced by many other central banks, since the ECB took over responsibility for an entirely new currency area. Moreover, institutional and behavioural changes following the introduction of the single currency at

Empirical knowledge of the transmission process



### Box 3.1 Empirical findings on monetary policy transmission in the euro area

Understanding the transmission mechanism is crucial for monetary policy. It is, therefore, not surprising that a number of studies – produced by both academics and Eurosystem staff – have tried to shed more light on the complex interactions underlying it. While still subject to considerable uncertainty (among other things related to the use of largely pre-1999 data), the main results of the studies on this issue seem to confirm that a number of widely accepted and well-established facts are also valid for the euro area.

#### Empirical estimates of the effects of changes in the short-term interest rate on real activity and prices

Several econometric models of the euro area have been used to estimate the effects of changes in the short-term interest rate on output and prices. As an illustration, Table 3.1 shows the results of the effects of changes in short-term interest rates based on three different models of the euro area, which reflect different economic structures and/or econometric methodologies. The table shows the responses of the levels of GDP and prices to a transitory 1 percentage point increase in the policy interest rate controlled by the central bank, which is then maintained at the higher level for two years.

The main features of the responses of GDP and prices are qualitatively consistent across all three models. An increase in short-term interest rates results in a temporary decrease in output, which peaks about two years after the initial monetary policy impulse and reverts back to the baseline level thereafter. At the same time, prices adjust gradually to a permanently lower level.

Broadly similar patterns are seen in a larger class of empirical models than those reported in Table 3.1 and they are consistent with the results for other countries and with the most consensual theoretical models of the transmission mechanism. In short, they show that monetary policy is neutral in the long run. Its effect on output is temporary while its effect on prices is permanent.

However, the magnitude and the timing of these responses are quite different across models, reflecting the uncertainty about the precise features of the transmission mechanism. For instance, the peak output responses in the three models shown in

**Table 3.1 Estimates of responses of real GDP and consumer prices to a 1 percentage point increase in the policy-controlled interest rate in the euro area**

	Real GDP				Consumer prices			
	Year 1	Year 2	Year 3	Year 4	Year 1	Year 2	Year 3	Year 4
Model 1	-0.34	-0.71	-0.71	-0.63	-0.15	-0.30	-0.38	-0.49
Model 2	-0.22	-0.38	-0.29	-0.14	-0.09	-0.21	-0.31	-0.40
Model 3	-0.34	-0.47	-0.37	-0.28	-0.06	-0.10	-0.19	-0.31

Source: “Recent findings on monetary policy transmission”, ECB’s Monthly Bulletin, October 2002.

Notes: Numbers are expressed as a percentage change compared with the initial levels of GDP and the index of prices. Model 1 is the ECB’s Area-Wide Model (AWM). Model 2 refers to an aggregate of the macroeconomic models of the national central banks of the euro area. Model 3 is the multi-country model of the United Kingdom’s National Institute of Economic and Social Research. The simulations reported assume that the interest rate increase triggers an increase in the long-term interest rate and an exchange rate appreciation.

Table 3.1 range between -0.38% and -0.71% and, two years after the initial interest rate shock, the price response lies in a range between -0.10% and -0.30%. Altogether, these estimates confirm the existence of long and uncertain lags in the mechanism by which monetary policy affects the price level.

### **Evidence on the channels of monetary policy transmission in the euro area**

Regarding the responses of individual components of GDP to interest rate changes, some studies stress the importance of the impact of monetary policy on investment compared with its impact on consumption and other components of aggregate demand. Business investment is mainly influenced by changes in the user cost of capital (a variable that is closely linked to interest rates). It is also sensitive, albeit to a more limited extent, to liquidity or cash-flow constraints (i.e. the ability of firms to issue debt on financial markets or to borrow from banks).

Available empirical studies also suggest that exchange rate effects can be quite important in the euro area. Hence, the response of consumer prices to a change in the official central bank interest rates will also depend on the effects of this change on the exchange rate. For example, the larger the appreciation of the euro triggered by a change in interest rates, the faster and larger the decline in inflation will be. However, the central bank can take for granted neither the size nor the direction of the exchange rate response to the interest rate because this response depends on other factors, e.g. foreign monetary policy developments, that are not controlled by the central bank.

the beginning of 1999 may have altered the relationships between different economic variables. However, more information and research results have become available over time and a more detailed understanding of monetary transmission in the euro area has developed (see Box 3.1 for a summary of recent empirical findings on monetary policy transmission in the euro area). Nevertheless, further progress and continuous monitoring are clearly needed.

### **3.3 THE ECB'S MONETARY POLICY STRATEGY: GENERAL PRINCIPLES**

#### **The task of monetary policy**

Taking into account the knowledge about the transmission process, the challenge faced by the ECB can be stated as follows: the Governing Council of the ECB has to influence conditions in the money market, and thereby the level of

short-term interest rates, to ensure that price stability is maintained over the medium term. In so doing, the central bank is continuously confronted with a high level of uncertainty regarding both the nature of the economic shocks hitting the economy and the existence and strength of the relationships that link macroeconomic variables. Against this background, it is possible to identify some key characteristics of a successful monetary policy.

First, as stressed in Section 3.2, monetary policy will be considerably more effective if it firmly anchors inflation expectations. In this respect, the central bank should specify its goal, elaborate and stick to a consistent and systematic method for conducting monetary policy, and communicate clearly and openly. These are key elements for acquiring a high level of credibility, a necessary

**Monetary policy should firmly anchor inflation expectations...**

precondition for influencing the expectations of economic actors.

...must be forward-looking...

Second, owing to the lags in the transmission process, changes in monetary policy today will only affect the price level after a number of quarters or years. This means that central banks need to ascertain what policy stance is needed today in order to maintain price stability in the future, after the transmission lags unwind. In this sense, monetary policy must be forward-looking.

...focusing on the medium term...

As the transmission lags make it impossible in the short run for monetary policy to offset unanticipated shocks to the price level (for example, those caused by changes in international commodity prices), some short-term volatility in inflation rates is unavoidable. In addition, owing to the complexity of the transmission process, there is always a large element of uncertainty surrounding the effects of monetary policy. For these reasons, monetary policy should have a medium-term orientation in order to avoid excessive activism and the introduction of unnecessary volatility into the real economy.

...and be broadly based

Finally, just like any other central bank, the ECB faces considerable uncertainty about the reliability of economic indicators, the structure of the economy and the monetary policy transmission mechanism, among other things. A successful monetary policy therefore has to be broadly based, taking into account all relevant information in order to understand the factors driving economic developments, and cannot rely on a single model of the economy.

The ECB has adopted and announced a monetary policy strategy to ensure a consistent and systematic approach to monetary policy decisions. This monetary policy strategy embodies the above-mentioned general principles in order to meet the challenges facing the central bank. It aims to provide a comprehensive framework within which decisions on the appropriate level of short-term interest rates can be taken.

The role of the strategy: a comprehensive framework for monetary policy decisions

The first element of the ECB's monetary policy strategy is a quantitative definition of price stability. In addition, the strategy provides a framework which ensures that the Governing Council assesses all the relevant information and analysis needed to take monetary policy decisions in a forward-looking manner and thereby ensure the maintenance of price stability. In this respect, the strategy also provides a framework for explaining monetary policy decisions to the public in a clear and transparent manner. The remaining sections of this chapter describe these elements in detail.

The main elements of the ECB's monetary policy strategy

### 3.4 THE ECB'S QUANTITATIVE DEFINITION OF PRICE STABILITY

While the Treaty clearly establishes the maintenance of price stability as the primary objective of the Eurosystem, it does not give a precise definition of what is meant by price stability. In order to specify this objective more precisely, the Governing Council of the ECB announced the following quantitative definition in 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

The ECB has defined price stability in quantitative terms

be maintained over the medium term”. Following a thorough evaluation of its monetary policy strategy in 2003, the Governing Council further clarified that, within the definition, it aims to maintain inflation rates below but close to 2% over the medium term.

**This both anchors inflation expectations and adds to the transparency and accountability of the ECB**

The Governing Council decided to publicly announce a quantitative definition of price stability for a number of reasons. First, by clarifying how the Governing Council interprets the goal it has been assigned by the Treaty, the definition helps to make the monetary policy framework easier to understand (i.e. it makes monetary policy more transparent). Second, the definition of price stability provides a clear and measurable yardstick against which the public can hold the ECB accountable. Deviations of price developments from the definition of price stability can be identified, and the ECB would then be required to provide an explanation for such deviations and to explain how it intends to re-establish price stability within an acceptable period of time. Finally, the definition provides guidance to the public for forming expectations of future price developments. All these positive features of the definition were even further enhanced by the clarification of the Governing Council that it aims, within the definition, at inflation rates of close to 2%.

**Focus on the euro area as a whole**

The definition of price stability makes clear that the Eurosystem has a euro area-wide mandate. Accordingly, price stability is assessed on the basis of price developments in the euro area viewed as a whole, indicating that decisions regarding the single monetary policy aim at achieving price

stability in the euro area as a whole. This focus on the euro area as a whole is the natural consequence of the fact that, within a monetary union, monetary policy can only steer the average money market interest rate level in the area, i.e. it must use a tool that is uniform across the area.

The definition also identifies a specific price index – namely the HICP for the euro area – as the one to be used for assessing whether price stability has been achieved. This index has been harmonised across the various countries of the euro area. The HICP is the index that most closely approximates the changes over time in the price of a representative basket of consumer spending (see Box 3.2). The use of a harmonised index makes transparent the ECB’s commitment to the full and effective protection against losses in the purchasing power of money.

**The HICP**

By referring to “an increase in the HICP of below 2%” the definition makes clear that not only inflation above 2% but also that deflation (i.e. price level declines) is inconsistent with price stability. In this respect, the explicit indication by the ECB to aim to maintain the inflation rate at a level below but close to 2% – i.e. close to the upper boundary of the definition – signals its commitment to provide an adequate margin to avoid the risks of deflation.

**Reasons for aiming at inflation rates of below but close to 2%...**

While deflation implies similar costs to the economy as inflation (see Section 3.1), avoiding deflation is also important because, once it occurs, it may become entrenched as a result of the fact that nominal interest rates cannot fall below zero. In a deflationary environment monetary

**...costs of deflation,...**

### Box 3.2 Construction and features of the HICP

The Governing Council of the ECB has defined price stability in terms of the Harmonised Index of Consumer Prices (HICP) for the euro area. The conceptual work related to the compilation of this price index is carried out by the European Commission (Eurostat) in close liaison with the national statistical institutes. As key users, the ECB and, previously, the European Monetary Institute (EMI), have been closely involved in this work.

The HICP data released by Eurostat are available from January 1995 onwards. Estimated backdata, which are not fully comparable with HICP data from 1995, are available for the overall HICP and its main components from 1990. Based on the consumer expenditure weights applicable for 2003, goods account for 59.1% and services account for 40.9% of the HICP (see Table 3.2). The main idea behind a breakdown of overall HICP into individual components is to identify the different economic factors that impact on consumer price developments. For example, developments in the energy price component are closely related to oil price movements. Food prices are divided into processed and unprocessed foods, because prices for the latter are influenced by factors such as weather conditions and seasonal patterns, while such factors have less of an impact on processed food prices. Services prices are sub-divided into five components which, on account of different market conditions, typically show differences in their respective developments.

The harmonisation measures introduced for the HICP in the different countries are based on several EC Regulations and Guidelines agreed with the Member States. Among other things, they concern coverage of consumer spending, initial standards for the procedures of quality adjustment, the treatment of new goods and services, and the revision of weights. "Initial" refers to the fact that some further harmonisation is foreseen in several areas. Moreover, a detailed and harmonised classification has been agreed for sub-indices, allowing a consistent comparison of price developments in detailed consumer expenditure sub-groups across countries. As a result of its harmonisation and statistical improvements aimed at enhancing its accuracy, reliability and timeliness, the HICP has become a high-quality, international-standard price index and a broadly comparable indicator across countries. Improvements are still ongoing with regard to the standards for quality adjustment and sampling, as well as the treatment of owner-occupiers' housing costs.

**Table 3.2 Weights of the main euro area HICP components applicable for 2003**

<b>Overall index</b>	<b>100.0</b>
Goods prices	59.1
Unprocessed food	7.6
Processed food	11.7
Non-energy industrial goods	31.6
Energy	8.2
Services	40.9
Housing services	10.4
Transport	6.3
Communication	2.9
Recreation and personal services	14.9
Miscellaneous	6.4

Source: Eurostat.

policy may thus not be able to sufficiently stimulate aggregate demand by using its interest rate instrument. Any attempt to bring the nominal interest rate below zero would fail, as the public would prefer to hold cash rather than to lend or hold deposits at a negative rate. Although various monetary policy actions are possible even when nominal interest rates are at zero, the effectiveness of these alternative policies is not certain. This makes it more difficult for monetary policy to fight deflation than to fight inflation.

...taking into account a potential measurement bias...

By setting the upper bound for inflation clearly above zero and aiming at inflation below but close to 2%, the ECB also takes into account the possibility of HICP inflation slightly overstating true inflation as a result of a small but positive bias in the measurement of price level changes using the HICP. For various reasons, consumer price indices may be subject to measurement errors. Such errors may arise if prices are not adequately adjusted for changes in quality or if some relevant transactions remain systematically out of the sample used to construct the index.

In the past, a number of economic studies have identified a small but positive bias in the measurement of national consumer price indices, suggesting that (as a result of quality improvements in goods, for example) a measured inflation rate of zero could in fact imply a slight decline in the actual price level. Where the euro area is concerned, evidence of a measurement bias in the HICP remains scarce, reflecting its short history. However, some studies indicate that the size of the bias is likely to be

limited, even if the level of uncertainty that surrounds these estimates is still very high. In addition, taking into account the continuous improvements being made to the HICP's properties by Eurostat (the European Commission agency responsible for this area of statistics at EU level), any bias is likely to further decline in the future.

The setting of a precise objective for monetary policy in a monetary union also takes into account the existence of inflation differentials across regions in the union to avoid some regions being forced to structurally operate at excessively low or negative inflation rates. In principle, inflation differentials across regions are a normal feature of any monetary union. They are an integral part of the adjustment mechanism resulting from divergences in economic developments across the regions' economies. Monetary policy can only influence the price level of the euro area as a whole and cannot affect inflation differentials across regions or cities.

...and the implications of inflation differentials in the euro area

Inflation differentials may be due to transitory factors and may thus be only temporary. Such differentials are of little economic concern. However, if real convergence between regions in a currency union is incomplete, structural inflation differentials across the regions comprising the union may arise. For example, there may be differences in initial income levels and an ongoing process of catching-up in standards of living within a currency area. If there are structural inflation differences in the euro area, this could potentially create economic problems in countries or regions with below-average inflation, especially if these countries had to structurally operate

with negative inflation rates. (Such problems may emerge, for instance, if economies are affected by downward nominal rigidities, i.e. the difficulty or impossibility of implementing cuts in wages and prices – which could impede the necessary adjustments in relative prices and thus hamper an efficient allocation of resources).

Given the existence of such unavoidable inflation differences, it has been argued that the ECB's monetary policy should aim to achieve over the medium-term an inflation rate for the area as a whole that is high enough to prevent regions with structurally lower

inflation rates from having to meet the costs of possible downward nominal rigidities or entering periods of protracted deflation. According to all available studies, a rate of inflation below but close to 2% for the euro area also provides a sufficient margin in this respect.

Finally, a fundamental aspect of the ECB's monetary policy is that it aims to pursue price stability “over the medium term”. As outlined above, this reflects the consensus that monetary policy cannot, and therefore should not attempt to, fine-tune developments in prices or inflation over short

The  
medium-term  
orientation

### Box 3.3 The medium-term orientation of the ECB's monetary policy

An economy is continuously subject to largely unforeseeable shocks that also affect price developments. At the same time, monetary policy can only affect price developments with significant time lags, which are variable and, like most economic relationships, highly uncertain. Against this background, it would be impossible for any central bank to keep inflation at a specific point target at all times or to bring it back to a desired level within a very short period of time. Consequently, monetary policy needs to act in a forward-looking manner and can only maintain price stability over longer periods of time. This is the reasoning that lies at the core of the ECB's medium-term orientation.

The medium term notion deliberately retains some flexibility with regard to the exact time frame. This reflects the fact that it is not advisable to specify ex-ante a precise horizon for the conduct of monetary policy, since the transmission mechanism spans a variable, uncertain period of time. Furthermore, the optimal monetary policy response to ensure price stability always depends on the specific nature and size of the shocks affecting the economy. For a wide variety of shocks (e.g. demand shocks, that move output and prices in the same direction) a prompt reaction by monetary policy is often adequate and will not only preserve price stability but also help to stabilise the economy. However, there are other types of economic shock (e.g. of a cost-push nature, like oil price hikes) that move output and prices in opposite directions. An excessively aggressive policy response to restore price stability in a very short span of time may, in these circumstances, risk imparting a significant cost in terms of output and employment volatility which, over a longer horizon, could also affect price developments. In these cases, it is widely recognised that a gradual response of monetary policy is appropriate both to avoid unnecessarily high volatility in real activity and to maintain price stability over a longer horizon. Thus, the medium-term orientation also gives the ECB the flexibility required to respond in an appropriate manner to the different economic shocks that might occur.

horizons of a few weeks or months. Changes in monetary policy only affect prices with a time lag, and the magnitude of the eventual impact is uncertain (see Section 3.2). This implies that monetary policy cannot offset all unanticipated disturbances to the price level. Some short-term volatility in inflation is therefore inevitable. As Box 3.3 explains, the medium-term orientation also allows monetary policy to take into account concerns about output fluctuations, without prejudice to attaining the primary objective.

### 3.5 THE ANALYSIS OF RISKS TO PRICE STABILITY IN THE ECB'S MONETARY POLICY STRATEGY

In order to best serve its objective of maintaining price stability, the ECB, like any other central bank, needs to thoroughly analyse economic developments.

#### The two pillars of the ECB's monetary policy strategy

The ECB's approach to organising, evaluating and cross-checking the information relevant for assessing the risks to price stability is based on two analytical perspectives, referred to as the two "pillars". This approach was confirmed and further clarified by the Governing Council of the ECB in May 2003.

In the ECB's strategy, monetary policy decisions are based on a comprehensive analysis of the risks to price stability. This analysis is organised on the basis of two complementary perspectives on the determination of price developments. The first perspective is aimed at assessing the short to medium-term determinants of price developments,

with a focus on real activity and financial conditions in the economy. It takes account of the fact that price developments over those horizons are influenced largely by the interplay of supply and demand in the goods, services and factor markets. The ECB refers to this as the "economic analysis". The second perspective, referred to as the "monetary analysis", focuses on a longer-term horizon, exploiting the long-run link between money and prices. The monetary analysis mainly serves as a means of cross-checking, from a medium to long-term perspective, the short to medium-term indications for monetary policy coming from the economic analysis.

The two-pillar approach is designed to ensure that no relevant information is lost in the assessment of the risks to price stability and that appropriate attention is paid to different perspectives and the cross-checking of information in order to come to an overall judgement on the risks to price stability. It represents, and conveys to the public, the notion of diversified analysis and ensures robust decision-making based on different analytical perspectives (see Box 3.4 for a discussion of alternative strategies).

#### Economic analysis

The economic analysis focuses mainly on the assessment of current economic and financial developments and the implied short to medium-term risks to price stability. The economic and financial variables that are the subject of this analysis include: developments in overall output; aggregate demand and its components; fiscal policy; capital and labour market conditions; a broad range of price and cost indicators; developments in the

...to ensure that no relevant information is lost

The two-pillar framework is a tool for organising information...

...based on two analytical perspectives...

Analysis of short to medium-term risks to price stability...



### Box 3.4 Alternative monetary policy strategies

A number of other monetary policy strategies are, or have been, pursued by other central banks. Several of these were considered by the EMI and the ECB before the decision was taken to adopt the stability-oriented two-pillar strategy.

One such strategy is monetary targeting. In practice, this means that a central bank changes official interest rates in an attempt to either speed up or slow down monetary growth to a specific and pre-announced rate. This target rate is derived so as to be compatible with price stability. Such a strategy rests on two premises. First, a stable relationship between money and the price level (e.g. in the form of a money demand equation) should exist over the medium term. If so, then a path consistent with price stability can be derived for the money stock. Second, the money stock should be controllable by monetary policy also over relatively short periods of time. Taken together, these conditions imply that the central bank can use changes in official interest rates to successfully keep the money stock on its prescribed path and thereby – because of the stability of the money-price relationship – indirectly maintain price stability.

While central bank experiences with this approach influenced the design of the ECB's strategy, the ECB decided not to adopt monetary targeting. This decision acknowledged the existence of information in macroeconomic variables other than money that is important for monetary policy decisions aimed at price stability. Furthermore, some uncertainties about the empirical properties of money in the euro area were created by the institutional and behavioural changes associated with the transition to Monetary Union, and – more generally – by the possibility that special factors might temporarily distort monetary developments. It is therefore not advisable to rely exclusively on monetary analysis.

Another strategy is direct inflation targeting. Rather than using money to guide monetary policy decisions, this approach focuses on developments in inflation itself relative to a published inflation target. Central banks using this approach typically communicate monetary policy decisions in terms of a more or less mechanical reaction to deviations in a forecast for a particular measure of inflation from a specific inflation target at a particular horizon. The central bank's forecast for inflation is therefore placed at the centre of policy analysis and discussions, both within the central bank and in its presentations to the public.

While there are many similarities between the ECB's strategy and strategies of other central banks using inflation targeting, the ECB decided not to pursue a direct inflation targeting strategy in the sense discussed above for a number of reasons. First, focusing entirely on a forecast inflation figure does not provide an encompassing and reliable framework for identifying the nature of threats to price stability. The appropriate monetary policy response generally depends on the sources of these risks to price stability. As a minimum, it requires a deeper analysis of the underlying economic situation and behaviour than is captured in an inflation forecast alone. Second, various aspects of the textbook inflation targeting approach – such as the fixed horizon (e.g. two years) of the forecast from which monetary policy decisions feed back – are somewhat arbitrary and in many circumstances do not appear to be optimal (e.g. factors

that may affect inflation beyond the chosen horizon, such as the presence of financial imbalances and asset price misalignments, may need to be taken into account in current monetary policy decisions). Third, it is difficult to integrate the information contained in monetary aggregates into inflation forecasts that are based on conventional macroeconomic models. Finally, the ECB considers that relying on a single forecast would be unwise, given the considerable uncertainty relating to the structure of the euro area economy. It is considered preferable to adopt a diversified approach to the analysis of economic data based on a variety of analytical methodologies.

A third strategy is exchange rate targeting, which was pursued by several European countries prior to Monetary Union in the context of the exchange rate mechanism of the European Monetary System. For small, open economies where the production and consumption of internationally traded goods are a large part of the economy, developments in the exchange rate can have a significant impact on the price level through their effect on the price of imports. An exchange rate targeting strategy was not considered appropriate for the euro area, as it is a large and relatively closed economy where the impact of exchange rate developments on the price level is more modest.

exchange rate, the global economy and the balance of payments; financial markets; and the balance sheet positions of euro area sectors. All these factors are helpful in assessing the dynamics of real activity and the likely development of prices from the perspective of the interplay between supply and demand in the goods, services and factor markets at shorter horizons.

In this analysis, due attention is paid to the need to identify the nature of shocks hitting the economy, their effects on cost and pricing behaviour and the short to medium-term prospects for their propagation in the economy. To take appropriate decisions, the Governing Council needs to have a comprehensive understanding of the prevailing economic situation and must be aware of the specific nature and magnitude of any economic disturbances threatening price stability. For example, the appropriate monetary policy response to the inflationary

consequences of a temporary rise in the international price of oil might be different from the appropriate response to higher consumer prices resulting from wage increases not in line with productivity growth. The former results in a transient and short-lived increase in inflation which quickly reverses. If this shock does not lead to higher inflation expectations, it may pose less of a threat to price stability over the medium term. In the case of excessive wage increases, however, the danger exists that a self-sustaining spiral of higher costs, higher prices and higher wage demands may be created. To avoid such a spiral, a determined monetary policy reaction to reaffirm the central bank's commitment to the maintenance of price stability, thereby helping to stabilise inflation expectations, may be the appropriate response.

Against this background, the ECB regularly reviews developments in overall output, demand and labour

...contributes  
to revealing  
the nature of  
shocks

Analysis of real  
economy  
indicators

### **Box 3.5 Statistics relating to economic and financial developments in the euro area**

As explained in Chapter 3, the chain of causes and effects linking monetary policy decisions with the price level is complex and involves time lags, which may be significant. Therefore, a wide range of indicators needs to be monitored in order to assess the outlook for price stability.

First, in terms of price and cost developments, alongside the HICP and its components, price developments in the industrial sector, as measured by producer prices, may play an important role in signalling future changes in consumer prices as changes in production costs feed through to consumer prices. Labour costs, which are an important element of overall production costs, have a significant impact on price formation. Labour cost statistics also provide information on the competitiveness of the euro area economy.

Second, indicators of output and demand (national accounts, short-term statistics on activity in industry and services, orders, and qualitative survey data) provide information on the cyclical position of the economy, an important element in the ECB's analysis of prospects for price developments. Furthermore, labour market data (on employment, unemployment, vacancies and labour market participation) are of crucial importance in the monitoring of conjunctural developments and in assessing structural changes in the functioning of the euro area economy. Moreover, the government sector represents a substantial part of economic activity; information on both financial and non-financial public sector accounts is essential.

Third, balance of payments statistics, along with external trade statistics, provide important information on developments in exports and imports which may affect inflationary pressures via their impact on demand conditions. These data also allow external trade prices – currently proxied by export and import unit value indices – to be monitored. These indices contribute to the assessment of, in particular, the potential impact on import prices of movements in the exchange rate and changes in commodity prices (such as oil). Although the euro area is a relatively closed economy compared with its individual member countries, imported inflation does affect domestic producer and consumer price developments.

As regards financial developments, monetary financial institutions' (MFI) balance sheet statistics provide information that can be used to derive euro area monetary aggregates and their counterparts (see Box 2.3). They also provide the basis for calculating the minimum reserves that MFIs must hold with the euro area national central banks. In addition, the ECB collects statistics on the interest rates applied by MFIs to deposits and loans. Furthermore, data on financial accounts present financial transactions and balance sheets for all economic sectors, such as households and financial and non-financial corporations. These statistics show the different sectors' financial investment and financing activities, the development of wealth and debt, and the financial interrelationships between the sectors.

In order to obtain more detailed information on the development of financing conditions, the ECB has developed a bank lending survey for the euro area. This survey data

complements existing statistics on retail bank interest rates and credit by providing information on supply and demand conditions in the euro area credit markets and on the lending policies of euro area banks. Finally, the ECB publishes monthly statistics on debt securities and quoted shares and quarterly statistics on euro area investment funds and the financing and financial investments of insurance corporations and pension funds in the euro area. It also publishes statistics on price developments on financial markets. All these statistics are used intensively in order to systematically analyse financial market structures and dynamics, including the expectations of economic agents relating to future economic and financial developments.

High-quality statistics are vital for a reliable picture of the economy. Policy mistakes due to incomplete or unreliable statistics can be costly in terms of higher inflation and higher volatility of economic activity. The quality of statistics entails several aspects, with varying priority according to the type of statistics. First, all industrial and institutional sectors of the economy should be covered. In addition to the conventional statistics on industry and trade, indicators for the increasingly important services sector are needed. Second, a harmonisation of concepts and methods is essential to ensure that any euro area indicator compiled from national series provides reliable information for monetary policy decisions. Third, timeliness and a sufficiently high frequency of data are essential for the conduct of a forward-looking monetary policy. Fourth, sufficient backdata are essential for econometric analyses which contribute to the understanding of the euro area economy.

The provision of statistics for the euro area is continuously being developed and improved. Common methodological standards have been defined for many areas of euro area statistics. In this regard, a number of initiatives have been taken. New euro area indicators have been developed in several statistical domains in recent years, and better timeliness and increased comparability have been achieved. For example, the Action Plan on EMU Statistical Requirements of September 2000 established by the European Commission (Eurostat) in close cooperation with the ECB detailed priority improvements in economic statistics. This has been augmented by the establishment of a list of the euro area indicators that are considered essential for short-term economic analysis. Entitled “The Principal European Economic Indicators” (PEEIs), this list also sets out demanding timeliness targets for the publication of euro area aggregates, to be achieved by 2005.

market conditions, a broad range of price and cost indicators, and fiscal policy, as well as the balance of payments for the euro area. Among other things, these indicators help to assess movements in aggregate demand, aggregate supply and the degree of capacity utilisation. Box 3.5 reviews some of the indicators of economic developments analysed by the ECB and highlights the importance

of the availability of high-quality statistics.

Developments in financial market indicators and asset prices are also closely monitored, not least because they can affect price developments (see Section 3.2). Asset prices and financial yields can also be analysed to derive information about the expectations of the financial markets,

**Analysis of  
financial market  
developments**

including expected future price developments. For example, when buying and selling bonds, financial market participants implicitly reveal their expectations about future developments in real interest rates and inflation. Using a variety of techniques, a central bank can analyse financial prices to extract the markets' implicit expectations about future developments.

Asset markets, and thus also asset prices, are by their very nature forward-looking. Changes in asset prices therefore largely reflect “news” – information about developments that the asset markets had not been expecting. In this sense, the monitoring of asset prices might help to identify shocks that are currently hitting the economy, including shocks to expectations about future economic developments. In analysing financial markets, statistical information on financial asset prices from various sources is assessed. On top of this, the ECB collects certain statistical information itself (see Box 3.5).

#### Analysis of exchange rate developments

Developments in the exchange rate are also closely assessed for their implications for price stability. As already discussed in Section 3.2, exchange rate movements have a direct effect on price developments through their impact on import prices. Changes in the exchange rate may also alter the price-competitiveness of domestically produced goods on international markets, thereby influencing demand conditions and potentially the outlook for prices. If such exchange rate effects alter the expectations and behaviour of wage and price-setters, the potential for second-round effects stemming from the exchange rate may exist.

The ECB's economic analysis has been significantly extended and enriched over time. This is largely due to the progress made in the production of euro area real economy and financial statistics and in the analytical processing of such information. Furthermore, a number of analytical and empirical models have been developed to better assess and understand past and ongoing developments, to make more reliable short-term forecasts and to underpin the regular macroeconomic projection exercises for the euro area economy. By monitoring incoming data and using all the available analytical tools, a comprehensive assessment of the economic situation and the outlook for the euro area can be conducted and updated continuously.

In this context, the Eurosystem's staff macroeconomic projection exercises play an important role in the economic analysis. The projections, which are produced under the responsibility of the staff, help to structure and synthesise a large amount of economic data and ensure consistency across different sources of economic evidence. In this respect, they are a key element in sharpening the assessment of economic prospects and the short to medium-term fluctuations of inflation around its trend.

The word “projection” is used in order to underline that the published projections are the results of a scenario based on a set of underlying technical assumptions, including the assumption of unchanged short-term interest rates. This is the way projections are produced in many central banks in order to best inform monetary policy decision-makers about what could happen if policy rates remained unchanged.

The economic analysis has been enriched over time

Euro area macroeconomic projections...

...based on technical assumptions,...

In view of this, it should be clear that the projection will not, in general, be the best predictor of future outcomes, in particular at somewhat longer horizons. In fact, it represents a scenario that is unlikely to materialise in practice, since monetary policy will always act to address any threats to price stability. Therefore, the macroeconomic projections of inflation by Eurosystem staff should not, under any circumstances, be seen as questioning the commitment of the Governing Council to maintaining price stability over the medium term. Wage and price-setters (i.e. the government, firms and households) should rely on the ECB's quantitative definition of price stability and especially the aim to keep inflation below, but close to 2% as the best prediction of medium and long-term price developments.

...models and technical expertise of staff

Eurosystem staff macroeconomic projections are produced using a number of tools and inputs. Several different macroeconometric models are available for the euro area as well as for individual member countries. In a situation of model uncertainty, it is preferable to employ a variety of them, embodying various views of economic structure and estimated using different methodologies, rather than relying on a unique and all-encompassing framework. The projections produced by these models are adjusted in light of the technical expertise of staff experts both at the ECB and at the NCBs.

Nevertheless projections have some limitations...

Although they play a useful role, the staff macroeconomic projections have their limitations. First, the final projection depends to a considerable extent on the underlying conceptual framework and the techniques

employed. Any such framework is bound to be a simplification of reality and may on occasions neglect the key issues that are relevant for monetary policy.

Second, economic projections can only provide a summary description of the economy and thus do not incorporate all relevant information. In particular, important information, such as that contained in monetary aggregates, is not easily integrated into the framework used to produce the projections, or information may change after the projections are finalised.

Third, expert views are inevitably incorporated into projections, and there can be good reasons not to agree with particular views. Fourth, projections are always based on specific assumptions – such as those concerning oil prices or exchange rates – with which it is possible to disagree or which can change rapidly, making the projections outdated.

A further consideration relates to the fact that the degree to which forecasts prove reliable tends to fall significantly as the length of the forecasting horizon increases. On some occasions, notably in the face of uncertainty about the sustainability of asset price movements, it may be advisable for a central bank to set interest rates in response to such developments that might otherwise impact on price stability at horizons extending well beyond conventional forecasting horizons.

Finally, with a view to the assumptions usually underlying the models used for forecasts, a central bank is well advised to evaluate and

...which points to the need to use various sources and techniques

compare the robustness of the information stemming from various sources. To fully assess the economic situation and the outlook for price stability, the Governing Council must receive input based on a variety of techniques and policy simulations based on various models, and must use its own judgement, particularly with regard to the likelihood that certain hypothetical scenarios will eventually materialise. An articulated and broadly based analysis of the economic forces at work in the economy must therefore always accompany the use of projections.

Overall, projections play an important, but not an all-encompassing role

For all these reasons, staff macroeconomic projections play an important but not all-encompassing role in the ECB's monetary policy strategy. The Governing Council evaluates them together with many other pieces of information and forms of analysis organised within the two-pillar framework. These include monetary analysis and analyses of financial prices, individual indicators and the forecasts of other institutions. The Governing Council neither assumes responsibility for the projections nor does it use the staff projections as its only tool for organising and communicating its assessment.

### Monetary analysis

Money provides a nominal anchor

The ECB singles out money from within the set of selected key indicators that it monitors and studies closely. This decision was made in recognition of the fact that monetary growth and inflation are closely related in the medium to long run (Box 3.6 summarises the results of some studies on this issue). This widely accepted relationship provides monetary policy with a firm and

reliable nominal anchor beyond the horizons conventionally adopted to construct inflation forecasts. Thus, assigning money a prominent role in the strategy is also a tool to underpin its medium-term orientation. Indeed, taking policy decisions and evaluating their consequences not only on the basis of the short-term indications stemming from the analysis of economic and financial conditions but also on the basis of money and liquidity considerations, allows a central bank to see beyond the transient impact of the various shocks and avoids the temptation of taking an overly activist course.

In order to signal its commitment to monetary analysis and to provide a benchmark for the assessment of monetary developments, the ECB announced a reference value for the broad monetary aggregate M3. This reference value refers to the rate of M3 growth that is deemed to be compatible with price stability over the medium term. (Box 3.7 explains how the reference value is derived.)

The reference value for monetary growth

The reference value therefore represents a "natural" benchmark for analysing the information content of monetary developments in the euro area. It constantly reminds the central bank of the fundamental principle that, while responding to economic developments, it must never lose sight of the fact that, over sufficiently extended horizons, the rate of money growth must be consistent with the price stability objective. Owing to the medium to long-term nature of the monetary perspective, however, there is no direct link between short-term monetary developments and monetary policy decisions. Monetary policy does not therefore react mechanically

### Box 3.6 Money and prices in the long run

The medium to long-term link between money and inflation in the euro area has been the subject of a number of studies (see bibliography). These studies approach the question from different angles and make use of different empirical techniques.

A first strand of studies has focused on the relationship between money and inflation at various frequencies. Using various statistical methodologies and filtering techniques, it is generally found that long-term movements in money show a very close relationship with longer-term trends in prices.

A second strand of literature has concentrated on the question of whether money can help to predict prices (i.e. whether money has leading indicator properties). Making use of a variety of forecasting techniques, there seems to be compelling evidence that the growth of broad monetary aggregates helps to predict inflation, notably at horizons exceeding two years. Moreover, various monetary indicators can indirectly offer information about risks to price stability through their impact on economic variables other than prices, which in due course can influence price formation. For example, narrow monetary aggregates have leading indicator properties for demand conditions and thus cyclical developments. Moreover, growth rates of money and credit in excess of those sufficient to sustain economic growth at a non-inflationary pace may, under certain conditions, signal the emergence of financial imbalances or speculative asset price bubbles. Such information may indicate, at an early stage, the build-up of destabilising forces with adverse implications for activity and, in the medium term, prices.

Finally, a third strand of studies has sought to explain the behaviour of money by linking it to a number of fundamental economic variables such as real GDP (as a measure of transactions) as well as various interest rates (as measures of the opportunity cost of holding money). While this kind of model can generally be used to quantify the sign and magnitude of the impact of the aforementioned determinants on money holdings, they often also make it possible to distinguish between dynamic forces and longer-term equilibria. They are, therefore, particularly well suited to investigating the nature and impact of shocks on money holdings.

Taken together, the generally favourable results of this variety of studies can be interpreted as a confirmation of the existence of a stable relationship between nominal money balances and prices in the euro area in the medium to long term.

to deviations of M3 growth from the reference value.

interest income or capital gains. These special factors can bring about changes in money holdings since individuals and firms will respond to changes in the attractiveness of bank deposits included in the definition of money relative to alternative financial instruments. However, monetary

#### The analysis of special factors

One reason for this is that, at times, monetary developments may also be influenced by “special” factors caused by institutional changes such as modifications to the tax treatment of



### Box 3.7 The ECB's reference value for monetary growth

The prominent role for money in the ECB's strategy is signalled by the announcement of a reference value for the growth of the broad monetary aggregate M3. The choice of M3 is based on the evidence, supported by several empirical studies, that this aggregate possesses all the desired properties: in particular, it has a stable money demand relationship and leading indicator properties for future price developments in the euro area. The reference value for the growth of M3 has been derived so as to be consistent with the achievement of price stability. Substantial or prolonged deviations of monetary growth from the reference value would, under normal circumstances, signal risks to price stability over the medium term.

The derivation of the reference value is based on the relationship between (changes in) monetary growth ( $\Delta M$ ), inflation ( $\Delta P$ ), real GDP growth ( $\Delta YR$ ) and velocity ( $\Delta V$ ). According to this identity, which is widely known as the "quantity equation", the change in money in an economy equals the change in nominal transactions (approximated by the change in real GDP plus the change in inflation) minus the change in velocity. The latter variable can be defined as the speed with which money is transferred between different money holders and thus determines how much money is required to service a particular level of nominal transactions.

$$\Delta M = \Delta YR + \Delta P - \Delta V$$

The derivation of the reference value is based on the definition of price stability as an increase in the HICP for the euro area of below 2% per annum. Furthermore, it is based on medium-term assumptions regarding potential output growth and the trend in the velocity of circulation of M3. In 1998, an assumption of 2-2½% per annum was made for the medium-term trend in real potential GDP growth for the euro area, reflecting estimates from both international organisations and the ECB. Various approaches were employed to derive the assumption for velocity of circulation, taking into account simple (univariate) trends as well as information available from more complex money demand models. Taken together, the results of these approaches pointed to a decline of M3 velocity in the range of ½-1% per annum. On the basis of these assumptions, the ECB's reference value was set at 4½% per annum by the Governing Council in December 1998. Furthermore, the Governing Council decided to analyse developments in relation to the reference value on the basis of a three-month moving average of 12-month growth rates of broad money. This approach is intended to smooth out monthly fluctuations, which can be rather volatile.

Over the period 1999-2002, the Governing Council reviewed the assumptions about the medium-term trends in potential output growth and the income velocity of M3 underlying the derivation of the reference value for M3 at the end of each year. Since no new decisive evidence emerged that would have led to a significant change in the underlying assumptions, the reference value was kept constant during that period. In May 2003 the Governing Council decided to no longer review the reference value for M3 on an annual basis because experience has shown that the underlying medium-term trend assumptions cannot be expected to change frequently.

At the same time, the Governing Council made clear that it would continue to monitor the validity of the conditions and assumptions underlying the reference value and communicate any changes to the underlying assumptions as soon as they become necessary.

developments caused by these special factors may not be very informative about the outlook for price stability. Consequently, monetary analysis at the ECB tries to focus on underlying monetary trends by including a detailed assessment of special factors and other shocks influencing money demand.

**A comprehensive assessment of liquidity and credit conditions**

As noted above, the analysis of monetary developments extends beyond the assessment of M3 growth in relation to its reference value. In this respect, the framework for monetary analysis builds on the ECB's expertise in the institutional features of the financial and monetary sector. In its regular monitoring of the monetary conditions in the euro area, the ECB also draws on a range of small-scale money demand and monetary indicator models that have been developed and published by ECB staff and academics.

The monetary analysis uses a comprehensive assessment of the liquidity situation based on information about the balance sheet context of M3 growth (i.e. the counterparts of M3 in the consolidated balance sheet of the MFI sector, in particular loans to the private sector) as well as the composition of M3 growth (i.e. the components). Such a detailed analysis of the counterparts and the structure of M3 growth is helpful for extracting the signal being sent by monetary developments that is relevant for identifying the longer-run trend in inflation. In this context, the

most liquid components of M3 – most notably M1 – receive particular attention as they more closely reflect the transaction motives for holding money, and may thus be most tightly related to aggregate spending.

At the same time, gaining a thorough understanding of the interdependencies between M3 and its counterparts is instrumental in judging whether observed changes in money growth are the result of “portfolio shifts” and whether or not those have implications for price trends.

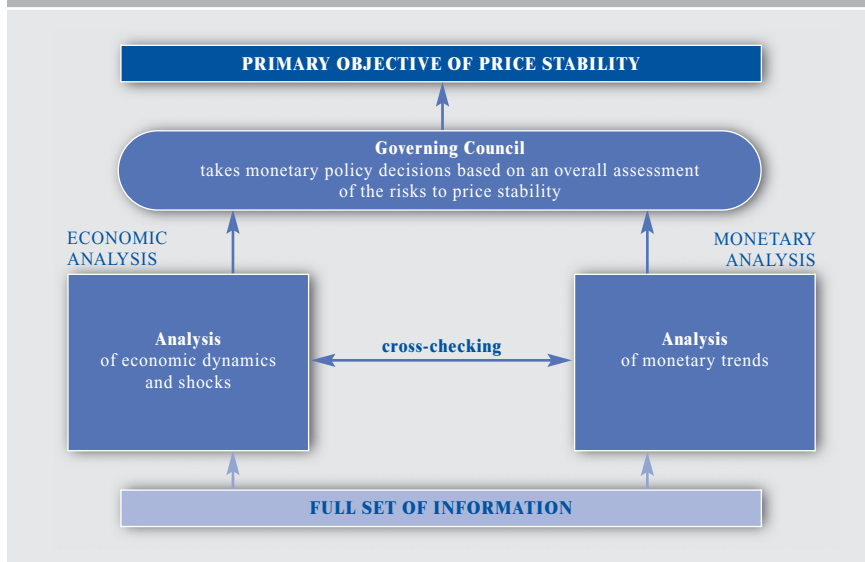
Finally, growth rates of money and credit in excess of those needed to sustain economic growth at a non-inflationary pace may, under certain circumstances, provide early information – in addition to more standard indicators – on developing financial instability. Such information is of relevance for monetary policy because the emergence of financial imbalances or asset price bubbles could have a de-stabilising effect on activity and, ultimately, prices in the medium term.

### **Cross-checking information from the two pillars**

Regarding the Governing Council's decisions on the appropriate stance of monetary policy, the two-pillar approach provides a cross-check of the indications that stem from the shorter-term economic analysis with those from the longer-term monetary analysis. As explained in more detail above, this cross-check ensures that

**Cross-checking the two analyses**

**Chart 3.2 The stability-oriented monetary policy strategy of the ECB**



monetary policy does not overlook important information relevant for assessing future price trends. All complementarities between the two pillars are exploited, as this is the best way to ensure that all the relevant information for assessing price prospects is used in a consistent and efficient manner, facilitating both the decision-making process and its communication (see Chart 3.2). This approach reduces the risk of policy error caused by the over-reliance on a single indicator, forecast or model. By taking a diversified approach to the interpretation of economic conditions, the ECB's strategy aims at adopting a robust monetary policy in an uncertain environment.

### 3.6 ACCOUNTABILITY, TRANSPARENCY AND COMMUNICATION

#### Central bank independence, accountability and transparency

As explained in Chapter 1, there are good reasons to entrust the task of maintaining price stability to an

independent central bank, which is not subject to potential political pressure. At the same time, in democratic societies, central bank independence needs to be balanced with accountability to the public and its elected representatives. Accountability can be understood as the legal and political obligation of an independent central bank to properly explain and justify its decisions to the citizens and their elected representatives, thereby holding the central bank responsible for fulfilling its objectives. Accountability is a fundamental element of democratic legitimacy. A clearly defined mandate is the basis for the democratic legitimacy of delegating monetary policy to an independent central bank, and an overriding focus on the mandate of price stability enables the public to hold an independent central bank more easily accountable. In this sense, accountability imposes discipline on the central bank to perform its tasks as well as possible.

**The ECB is accountable to the citizens of the European Union**

The appropriate channels for ensuring the accountability of a central bank depend on the institutional framework and on the bank's mandate. As a body established by virtue of the Treaty, and acting within the limits of the powers conferred upon it, the ECB has the statutory task of maintaining price stability and of performing other central banking functions for the euro area as a whole. Therefore, the ECB is accountable first and foremost to the citizens of the European Union, from whom the Treaty's legitimacy derives, and – more formally – to the European Parliament, which is the only European institution directly elected by EU citizens.

**The ECB's relations with the European Parliament**

The ECB's relationship with the European Parliament in this regard is defined by the Treaty and fully respects the Eurosystem's independent status. The Treaty contains a number of reporting requirements for the ECB (e.g. the presentation of an Annual Report to the European Parliament, the Commission and the EU Council) and establishes regular presentations to the European Parliament to ensure accountability (see Chapter 1).

**Transparency**

A concept closely related to yet distinct from accountability is that of central bank transparency. Transparency can be defined as an environment in which the central bank provides the general public and the markets with all relevant information on its strategy, assessments and policy decisions as well as its procedures, and does so in an open, clear and timely manner. Today, most central banks, including the ECB, consider transparency a crucial component of their monetary policy framework, emphasising the importance of effective communication and proper

interaction with the public. Ultimately, all efforts to enhance transparency are aimed at ensuring that monetary policy is better understood by the public and therefore becomes more credible and effective.

In this respect, first and foremost transparency requires the central bank to clearly explain how it interprets its mandate and to be forthcoming about its policy goals. This helps the public to monitor and evaluate the central bank's performance. In addition, the central bank needs to explain the analytical framework used for its internal decision-making and its assessment of the state of the economy, and to frequently make clear the economic rationale underlying its policy decisions. In this respect, transparency can be enhanced by providing a systematic framework for both internal decision-making and external communication with the public, in particular by means of a publicly announced monetary policy strategy.

The bank's overriding concern with regard to transparency must be the effectiveness of monetary policy in meeting its statutory objectives. Transparency can render monetary policy more effective for several reasons.

First, being clear about its mandate and how it goes about fulfilling it helps a central bank to foster credibility. When a central bank is perceived as being able and willing to achieve its policy mandate, price expectations are well anchored. In this respect, frequent communication about the central bank's assessment of the economic situation is particularly useful. Furthermore, it is helpful for

**What makes a central bank transparent?**

**Transparency makes monetary policy more effective as it...**

**...fosters credibility,...**

central banks to be open and realistic about what monetary policy can do and, even more importantly, what it cannot do (see Section 3.1).

and accelerate any necessary economic adjustments, thus potentially enhancing the effectiveness of monetary policy.

### **The communication role of a monetary policy strategy**

In order to promote a better understanding of monetary policy, the main aspects of the process of monetary policy-making should be made understandable for the general public. In practice, however, it is difficult to provide the public with a completely exhaustive and intelligible communication of all the detailed elements and aspects of the internal monetary policy-making process while at the same time ensuring that this information is properly understood.

Therefore, in presenting monetary policy to the public, various choices have to be made. Transparency means more than simply releasing information. It also requires structuring that information in such a way that it can be understood by the public.

However, efforts to convey a clear message should not detract from the need to explain the actual nature of policy-making. Any communication must reflect the fact that monetary policy has to operate in a complex, uncertain and constantly evolving environment. The external communication of the ECB's monetary policy strategy places a premium on faithfully reflecting this environment. The external presentation of the ECB's strategy may be relatively complex compared with some other strategies (such as monetary targeting or inflation targeting, see Box 3.2), but it nevertheless realistically reflects the diversified approach to monetary policy that the ECB has adopted for its internal decision-making.

...imposes self-discipline on policy-makers...

Second, a strong commitment to transparency imposes self-discipline on policy-makers, and this then helps to ensure that their policy decisions and explanations are consistent over time. Facilitating public scrutiny of monetary policy actions enhances the incentives for the decision-making bodies to fulfil their mandates in an appropriate manner.

...and provides guidance to the markets

Third, by publicly announcing its monetary policy strategy and communicating its regular assessment of economic developments, the central bank provides guidance to the markets so that expectations can be formed more efficiently and accurately. This helps the markets to understand the systematic response pattern of monetary policy to economic developments and shocks and thus to anticipate the broad direction of monetary policy over the medium term, making policy moves more predictable.

Such predictability is important for the conduct of monetary policy: while central banks only directly control very short-term interest rates, the expected path of these rates over longer horizons and the premia for uncertainty are also significant for the transmission of monetary policy to the economy. If agents can broadly anticipate policy responses, this allows a rapid incorporation of any (expected) changes in monetary policy into financial variables. This in turn can shorten the process by which monetary policy is transmitted into investment and consumption decisions

Presentation of monetary policy to the public...

...needs to take into account the complexity of policy-making...

...and be consistent with internal decision-making

Effective communication also requires the central bank to address a variety of audiences and to use a variety of channels. To this end, in its communication activities, the ECB has

gone beyond the formal Treaty requirements in adopting additional means of ensuring accountability and transparency (see Box 3.8).

### **Box 3.8 Key communication channels used by the ECB**

The monthly press conferences held by the President and the Vice-President immediately after the first Governing Council meeting of the month and the Monthly Bulletin are two of the most important communication channels used by the ECB. The President's introductory statement at the press conference provides a timely and comprehensive summary of the policy-relevant assessment of economic developments. It is structured along the lines of the ECB's monetary policy strategy and its text is agreed by the Governing Council. The monthly press conference includes a question and answer session, which is attended by various media representatives from across the euro area and beyond, and provides a platform for a timely and even-handed explanation of monetary policy decisions to the public. Transcripts of the press conference are made available on the ECB's website only a few hours later. The press conference is therefore an effective means of presenting and explaining in a very timely manner the discussions in the Governing Council and thus the monetary policy decision-making process.

The Monthly Bulletin provides the general public and the financial markets with a detailed and comprehensive analysis of the economic environment. It is usually published one week after the meeting of the Governing Council and contains the information that the Governing Council possessed when it took its policy decisions. The Monthly Bulletin also contains articles which provide insights into long-term developments, general topics or the analytical tools used by the Eurosystem within the framework of the monetary policy strategy.

In addition, the President of the ECB appears four times a year before the European Parliament's Committee on Economic and Monetary Affairs. The President explains the ECB's policy decisions and then answers questions posed by Committee members. The Committee meetings are open to the public and the transcripts of the President's testimonies are published on the websites of both the European Parliament and the ECB after the testimony. Other members of the Executive Board of the ECB also appear before the Committee.

The members of the Governing Council take on a large number of public engagements. Speeches by the President and other members of the Executive Board and Governing Council are important tools for explaining the views of the ECB to the public. Another major channel for reaching international as well as local target groups are interviews granted by Governing Council members. The ECB also receives a large number of visits from members of the general public as well as experts from a variety of institutions. It is committed to open dialogue with the academic world. Research results of a technical nature and policy-related studies of general interest are published by staff members in the ECB's Working Paper and Occasional Paper series respectively.

Finally, the transparency of monetary policy also requires that the statistical data collected by the central bank be published, once their reliability has been ensured, fully and in a timely manner. With the help of the NCBs, the ECB collects money and banking and related statistics, balance of payments statistics and international investment position statistics, and compiles financial accounts statistics covering the euro area (see Box 3.5). The timely publication of these data allows the ECB to share with the public the information it possesses on economic developments in the euro area and thereby facilitates the communication of monetary policy decisions by the Governing Council.

Given that the Eurosystem is obliged to communicate in a multicultural and multilingual environment, the NCBs are essential players in the communication strategy. They maintain close contact with national and regional audiences, translating the policy signals into different languages and tailoring them to the national context.

## 4 MONETARY POLICY IMPLEMENTATION

This chapter explains how monetary policy decisions are implemented using the available monetary policy instruments. The first section gives an overview of the objectives and principles that govern the functioning of the Eurosystem's operational framework. The second section briefly describes the main monetary policy instruments (open market operations, the standing facilities and the minimum reserve system), while the following sections examine these in greater detail and present the interaction between the monetary policy instruments and the banks' liquidity needs in the context of a central bank balance sheet. The final section provides a brief assessment of the operational framework's performance in the first four and a half years of the single monetary policy.

### 4.1 GENERAL PRINCIPLES AND OBJECTIVES BEHIND THE DESIGN OF THE OPERATIONAL FRAMEWORK

Money market and the transmission of monetary policy

As discussed in Chapter 3, short-term money market rates play an important role in the transmission of monetary policy. Monetary policy exerts significant influence over short-term nominal market interest rates. By setting interest rates, monetary policy influences the economy, and ultimately the price level, in a number of ways.

Operational framework...

In order to achieve its primary objective, the Eurosystem has at its disposal a set of monetary policy instruments and procedures. This set forms the operational framework used to implement the single monetary policy.

...and the monetary policy strategy

The operational framework and the monetary policy strategy each have a specific role in the implementation of monetary policy. The strategy determines which money market interest rate level is required to maintain price stability over the medium term, whereas the operational framework determines how to achieve

this interest rate level using the available monetary policy instruments.

A central bank steers short-term money market rates by signalling its monetary policy stance and by managing the liquidity situation in the money market. The central bank, as the sole issuer of banknotes and bank reserves, is the monopoly supplier of the monetary base. The monetary base of the euro area consists of currency (banknotes and coins) in circulation, the reserves held by counterparties with the Eurosystem and recourse to the Eurosystem's deposit facility. These items are liabilities in the Eurosystem's balance sheet. Reserves can be broken down further into required and excess reserves. In the Eurosystem's minimum reserve system, counterparties are obliged to hold reserves with the NCBs (see Section 4.3). In addition to these required reserves, credit institutions usually hold only a small amount of voluntary excess reserves with the Eurosystem.

By virtue of its monopoly, the central bank is able to manage the liquidity situation in the money market and influence money market interest rates.

The functions of the operational framework include steering interest rates and managing liquidity,...



...signalling the monetary policy stance...

In addition to steering interest rates by managing liquidity, the central bank can also signal its monetary policy stance to the money market. This is usually done by changing the conditions under which the central bank is willing to enter into transactions with credit institutions.

...and ensuring an orderly functioning of the money market

In its operations the central bank also aims to ensure an orderly functioning of the money market and to help credit institutions meet their liquidity needs in a smooth manner. This is achieved by providing both regular refinancing to credit institutions and facilities that allow them to deal with end-of-day balances and to cushion transitory liquidity fluctuations.

The guiding principles of the framework are the principles of an open market economy,...

The operational framework of the Eurosystem is based on the principles laid down in the Treaty on European Union. Article 105 of the Treaty states that in pursuing its objectives, the Eurosystem “(...) shall act in accordance with the principle of an open market economy with free competition, favouring an efficient allocation of resources (...)”.

...operational efficiency,...

In addition to the principles set out in the Treaty on European Union, the operational framework aims to follow several guiding principles. The most important of these is the principle of operational efficiency, which takes priority over the other principles. Operational efficiency can be defined as the capacity of the operational framework to enable monetary policy decisions to feed through as precisely and as quickly as possible to short-term money market rates. These in turn, through the monetary policy transmission mechanism, affect the price level.

The need to ensure equal treatment of financial institutions and the harmonisation of rules and procedures throughout the euro area are other important principles of the operational framework. Credit institutions must be treated equally irrespective of their size and of where they are located in the euro area. The harmonisation of rules and procedures helps to ensure equal treatment by trying to provide identical conditions to all credit institutions in the euro area in transactions with the Eurosystem.

...equal treatment of financial institutions and the harmonisation of rules and procedures,...

One principle which is specific to the Eurosystem is the decentralisation of the implementation of monetary policy. Accordingly, the Eurosystem's monetary policy operations are normally implemented through the NCBs, which means that the ECB coordinates the operations and the transactions are carried out by the NCBs.

...decentralisation of implementation, ...

In addition, the operational framework has to apply the principles of simplicity, transparency, continuity, safety and cost efficiency. Simplicity and transparency ensure that the intentions behind monetary policy operations are correctly understood. The principle of continuity aims at avoiding major changes in instruments and procedures, so that central banks and their counterparties can draw on experience when participating in monetary policy operations. The principle of safety requires that the Eurosystem's financial and operational risks are kept to a minimum, while cost efficiency implies low operational costs for both the Eurosystem and its counterparties arising from the operational framework.

...as well as simplicity, transparency, continuity, safety and cost efficiency

## 4.2 OVERVIEW OF THE EUROSISTEM'S OPERATIONAL FRAMEWORK

The Eurosystem's operational framework is described at length in the ECB publication entitled "The implementation of monetary policy in the euro area: General documentation on Eurosystem monetary policy instruments and procedures".

### Open market operations

Table 4.1 provides an overview of the main features of the two groups of operations available to the Eurosystem

for the conduct of the single monetary policy: open market operations and standing facilities. The most important group of operations is open market operations. This is the term used for operations that are executed on the initiative of the central bank, usually in the money market. As described in Section 2.5, "money market" refers to the market in which the maturity of transactions is generally less than one year. Open market operations play an important role in steering interest rates, signalling the stance of monetary

**Table 4.1 Eurosystem open market operations and standing facilities**

Monetary policy operations	Types of transactions <sup>1)</sup>		Maturity	Frequency
	Liquidity-providing	Liquidity-absorbing		
<b>Open market operations</b>				
Main refinancing operations	• Reverse transactions	–	• One week <sup>2)</sup>	• Weekly
Longer-term refinancing operations	• Reverse transactions	–	• Three months	• Monthly
Fine-tuning operations	• Reverse transactions	• Foreign exchange swaps	• Non-standardised	• Non-regular
	• Foreign exchange swaps	• Collection of fixed-term deposits		
	• Outright purchases	• Reverse transactions • Outright sales		
Structural operations	• Reverse transactions	• Issuance of debt certificates	• Standardised/ non-standardised	• Regular and non-regular
	• Outright purchases	• Outright sales	–	• Non-regular
<b>Standing facilities</b>				
Marginal lending facility	• Reverse transactions	–	• Overnight	• Access at the discretion of counterparties
Deposit facility	–	• Deposits	• Overnight	• Access at the discretion of counterparties

1) See Box 4.3 for a description of the types of open market transactions.

2) As of 10 March 2004. Prior to that date two weeks (see Box 4.2).

policy and managing the liquidity situation in the money market.

#### Main refinancing operations

The main refinancing operations (MROs) are the most important open market operations and represent the key monetary policy instrument of the Eurosystem. Through the main refinancing operations the Eurosystem lends funds to its counterparties. Lending is always against collateral, in order to protect the Eurosystem against financial risks. Box 4.1 provides some information on counterparties to the Eurosystem's monetary policy operations and the collateral required in the liquidity-providing operations.

#### Reverse transactions

Lending through open market operations normally takes place in the form of reverse transactions. In reverse transactions of this kind the central bank buys assets under a repurchase agreement or grants a loan against assets given as collateral (see Box 4.3). Reverse transactions are

therefore temporary open market operations which provide funds for a limited and pre-specified period only.

#### Standing facilities

For the purpose of controlling short-term interest rates in the money market and, in particular, restricting their volatility, the Eurosystem also offers two standing facilities to its counterparties, the marginal lending facility and the deposit facility. Both facilities have an overnight maturity and are available to counterparties on their own initiative. The interest rate on the marginal lending facility is normally substantially higher than the corresponding market rate, and the interest rate on the deposit facility is normally substantially lower than the market rate. As a result, credit institutions normally only use the standing facilities when there are no other alternatives. Since – except for the collateral requirements of the marginal lending facility – there are no limits on the access to these facilities, their interest rates normally provide a

### Box 4.1 Counterparties and collateral

#### I. Counterparties

The Eurosystem's monetary policy framework is formulated with a view to ensuring the participation of a broad range of counterparties. Counterparties to Eurosystem monetary policy operations must fulfil certain eligibility criteria. These criteria are defined in such a way as to ensure equal treatment for institutions across the euro area and to ensure that counterparties fulfil certain operational and prudential requirements. The general eligibility criteria are uniform throughout the euro area.

To be an eligible counterparty a credit institution must be subject to the Eurosystem's minimum reserve system and be financially sound. In addition, counterparties must fulfil any operational criteria specified in the relevant contractual or regulatory arrangements applied by their NCB (or by the ECB), so as to ensure the efficient conduct of Eurosystem monetary policy operations. At the end of June 2003 there were 6,776 credit institutions located in the euro area. However, only 2,243 fulfilled the operational criteria for participating in open market operations. 2,749 and 3,188 fulfilled the operational criteria for accessing the marginal lending facility and the deposit facility respectively. However, the number of counterparties actually participating in open market operations is normally

much lower than the number of eligible counterparties. In the first half of 2003 the total number of counterparties participating in the tenders for the main refinancing operations averaged 252. At the same time, the number of counterparties participating in the longer-term refinancing operations (LTROs) was 136 on average.

A credit institution fulfilling the general eligibility criteria may access the Eurosystem standing facilities and participate in Eurosystem open market operations based on standard tenders through the NCB of the Member State in which it is established. If a credit institution has establishments (a head office and branches) in more than one Member State, each establishment has access to these operations through the NCB of the Member State in which it is located. However, the tender bids of an institution may only be submitted by one establishment (either the head office or a designated branch) in each Member State.

The Eurosystem's monetary policy operations are implemented in a decentralised manner. The decentralised approach has been very efficient and has run smoothly thanks to careful preparation and efficient information systems. The Eurosystem continues to benefit greatly from the close contacts which the NCBs have built up over the decades with their local counterparties.

## **2. Collateral**

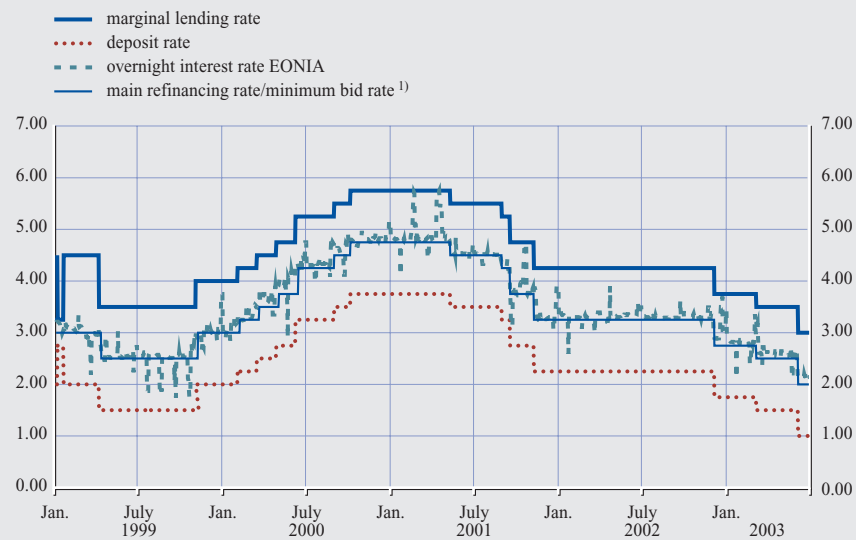
Article 18.1 of the Statute of the ESCB allows the ECB and the NCBs to transact in financial markets by buying and selling underlying assets outright or under repurchase agreements and requires all Eurosystem credit operations to be based on adequate collateral. This requirement is designed to protect the Eurosystem against financial risk. Consequently, all Eurosystem liquidity-providing operations are based on underlying assets provided by the counterparties.

In order to protect the Eurosystem from incurring losses, ensure the equal treatment of counterparties and enhance operational efficiency, underlying assets have to fulfil certain criteria in order to be eligible for use in Eurosystem monetary policy operations. The Eurosystem accepts instruments issued by both private and public debtors as collateral in order to respect the principle of equal treatment.

Owing to the differences in financial structure across Member States, a distinction is made – essentially for purposes internal to the Eurosystem – between two categories of assets eligible for monetary policy operations. These two asset categories are referred to as “tier one” and “tier two”. Tier one consists of marketable debt instruments which fulfil uniform euro area-wide eligibility criteria specified by the ECB. Tier two consists of additional assets – marketable and non-marketable – which are of particular importance for national financial markets and banking systems. The eligibility criteria for these assets are set by the NCBs, subject to the minimum eligibility criteria established by the ECB. Eurosystem counterparties may use eligible assets on a cross-border basis, i.e. they may obtain funds from the NCB of the Member State in which they are established by making use of assets located in another Member State. This cross-border mechanism ensures that institutions all over the euro area can use the complete lists of ECB tier one and national tier two assets. Finally, all eligible assets are subject to specific risk-control measures which are defined in such a way that account is taken of market practices.

## Chart 4.1 Key ECB interest rates and the EONIA

(percentages per annum; daily data)



Source: ECB.

1) Before 28 June 2000 the main refinancing operations were conducted as fixed rate tenders. Starting from the operation settled on 28 June 2000 the main refinancing operations were conducted as variable rate tenders with a pre-announced minimum bid rate. The minimum bid rate refers to the minimum interest rate at which counterparties may place their bids (see Section 4.4).

ceiling and a floor for the overnight rate in the money market. These instruments are examined in more detail in Section 4.5.

### Corridor of standing facility interest rates

By setting the rates on the standing facilities, the Governing Council determines the corridor within which the overnight money market rate can fluctuate. Chart 4.1, which shows the development of the key ECB interest rates since January 1999, also shows how the interest rates on the standing facilities have provided a ceiling and a floor for the overnight market interest rate (EONIA).<sup>8</sup>

As can be seen from Chart 4.1, the EONIA has generally remained close to the rate on the main refinancing operations, thus illustrating the importance of these operations as the main monetary policy instrument of the Eurosystem. Chart 4.1 also shows that the EONIA exhibits a pattern of occasional spikes. These two features of the EONIA are related to the Eurosystem's minimum reserve system, which is explained further in Section 4.3. Finally, Chart 4.1 illustrates that the differences between the standing facility rates and the rate on the main refinancing operations were kept unchanged between April 1999 and June 2003 ( $\pm 1$  percentage point).<sup>9</sup>

**EONIA, the key ECB interest rates and the minimum reserve system**

<sup>8</sup> The euro overnight index average (EONIA) is disseminated by the European Banking Federation (EBF). It is the weighted average of all uncollateralised overnight loans made by a panel of the banks most active in the money market.

<sup>9</sup> A narrow corridor of  $\pm 0.25$  percentage point was applied as a transitional measure between 4 and 21 January 1999 to facilitate the adaptation to the single operational framework.

### 4.3 MINIMUM RESERVES

#### Description of the system

Required reserves and the reserve base

The ECB requires credit institutions to hold compulsory deposits on accounts with the NCBs: these are called “minimum” or “required” reserves.<sup>10</sup> The amount of required reserves to be held by each institution is determined by its reserve base. The reserve base of an institution is defined in relation to the elements of its balance sheet. Table 4.2 shows the main liability items included in the reserve base.<sup>11</sup>

Reserve ratio

In order to determine an institution’s reserve requirement, the reserve base is multiplied by a reserve ratio. The ECB applies a uniform positive reserve ratio to most of the items included in the reserve base. This reserve ratio was set at 2% at the start

of Stage Three of EMU. Most of the short-term liabilities on credit institutions’ balance sheets are subject to a positive reserve ratio. As can be seen from Table 4.2, neither long-term liabilities nor repurchase agreements are subject to a positive reserve ratio.

Institutions can deduct a uniform lump-sum allowance from their reserve requirement. Since the introduction of the euro they have been entitled to deduct €100,000. This allowance is designed to reduce the administrative costs arising from managing very small reserve requirements.

In order to meet their reserve requirements, credit institutions have to hold balances on their current accounts with the NCBs. In this

Lump-sum allowance

Averaging provisions

**Table 4.2 Credit institutions’ liabilities included in the reserve base**

(stock levels as at the end of June 2003; EUR billions)

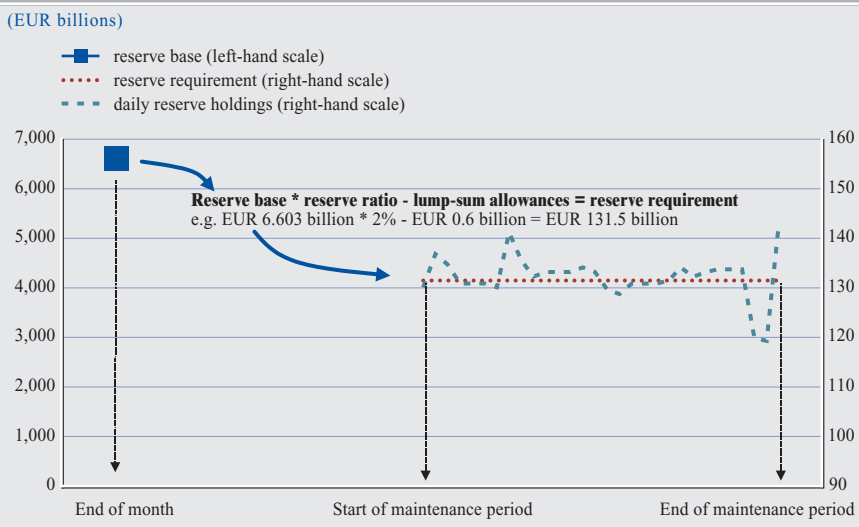
<b>(A) Liabilities to which a positive reserve ratio is applied</b>	
Deposits (including overnight deposits, deposits with an agreed maturity up to two years and deposits redeemable at a period of notice of up to two years)	6,216
Debt securities issued with a maturity of up to two years (including money market paper)	412
<b>Total (A)</b>	<b>6,628</b>
<b>(B) Liabilities to which a zero reserve ratio is applied</b>	
Deposits (including deposits with an agreed maturity of over two years and deposits redeemable at a period of notice of over two years)	1,421
Debt securities issued with a maturity of over two years	2,536
Repurchase agreements	783
<b>Total (B)</b>	<b>4,741</b>
<b>Total reserve base (A)+(B)</b>	<b>11,369</b>

Source: ECB.

<sup>10</sup> The legal framework for the Eurosystem’s minimum reserve system is based on Article 19 of the Statute of the ESCB. The details of the minimum reserve system are contained in several legal acts, the most important being Council Regulation (EC) No 2531/98 concerning the application of minimum reserves by the European Central Bank and Regulation (EC) No 2818/98 of the European Central Bank on the application of minimum reserves (ECB/1998/15), as amended.

<sup>11</sup> Liabilities vis-à-vis other credit institutions included in the list of institutions subject to the Eurosystem’s minimum reserve system and liabilities vis-à-vis the ECB and the NCBs are not included in the reserve base.

**Chart 4.2 The functioning of the Eurosystem's reserve requirement system**



Source: ECB.

respect, the Eurosystem's minimum reserve system enables counterparties to make use of averaging provisions. This means that compliance with reserve requirements is determined on the basis of the average of the daily balances on the counterparties' reserve accounts over a reserve maintenance period of around one month.

**Reserve maintenance period**

The Governing Council decided in 2003 that as of March 2004 maintenance periods would start on the settlement day of the first main refinancing operation following the Governing Council meeting at which the monthly assessment of the monetary policy stance is pre-scheduled (see Box 4.2), and will end on the day preceding the corresponding settlement day in the following month. To help credit institutions prepare their reserves management, a maintenance period schedule (together with an indicative schedule for the main refinancing operations for a calendar year) are

published three months before the start of that year.

The Eurosystem aims to ensure that the minimum reserve system neither puts a burden on the banking system in the euro area nor hinders the efficient allocation of resources. For this reason, credit institutions' holdings of required reserves are remunerated. The remuneration corresponds to the average, over the maintenance period, of the "marginal rate of allotment" (weighted according to the number of calendar days) of the main refinancing operations (see also Section 4.4). As the marginal tender rates are generally very close to the short-term money market interest rates, the required reserves are remunerated at close to the market rate.

**Remuneration of required reserves**

Chart 4.2 shows an example of the determination of the Eurosystem's reserve requirement. In this example, the reserve base of the credit institutions is determined by the

**Determination of reserve requirements**

liabilities taken from their balance sheets as at 31 May 2003. By applying the 2% reserve ratio to the relevant reserve base and deducting the lump-sum allowance, the reserve requirements are determined for the following maintenance period (which in this case started on 24 June and ended on 23 July 2003).

The dark blue line in Chart 4.2 indicates how averaging provisions work in the Eurosystem's minimum reserve system. Credit institutions' current account holdings can fluctuate freely around the reserve requirements, but the average current account holdings must at least be equal to the reserve requirement over the whole maintenance period. In the example, the average credit institution holdings on current accounts with the Eurosystem amounted to €132.1 billion, implying voluntarily held excess reserves of €0.6 billion over the reserve requirements of €131.5 billion.

### Functions of the system

The first key function of the minimum reserve system is to stabilise money market interest rates. This function is performed by the averaging provision. The averaging provision allows credit institutions to smooth out daily liquidity fluctuations (e.g. those arising from fluctuations in the demand for banknotes), since transitory reserve imbalances can be offset by opposite reserve imbalances generated within the same maintenance period.

The averaging provision implies that institutions can profit from lending in the market and run a reserve deficit whenever the shortest money market rates are above those expected to prevail for the remainder of the maintenance period. In the opposite

scenario, they can borrow in the market and run a reserve surplus. In theory, this “intertemporal arbitrage” should ensure equality throughout the maintenance period between the current level and the expected level of the shortest money market rates at the end of the maintenance period. This mechanism stabilises the overnight interest rate during the maintenance period and makes it unnecessary for the central bank to intervene frequently in the money market.

The averaging provision works very smoothly during the maintenance period. However, at the end of the period, the reserve requirement becomes binding and banks can no longer transfer a liquidity surplus or deficit into the future. This explains the spikes in the EONIA towards the end of each maintenance period, which can be seen from Chart 4.1.

A second important function assigned to the minimum reserve system is the enlargement of the structural liquidity shortage of the banking system. The need for credit institutions to hold reserves with the NCBs contributes to increasing the demand for central bank refinancing which, in turn, makes it easier for the ECB to steer money market rates through regular liquidity-providing operations.

## 4.4 OPEN MARKET OPERATIONS

The Eurosystem's open market operations can be divided into the following four categories according to their aim, regularity and the procedures followed: main refinancing operations, longer-term refinancing operations, fine-tuning operations and structural operations (see Table 4.1 and Box 4.3).

Stabilisation of  
money market  
interest rates

Enlargement of  
the structural  
liquidity  
shortage

Four categories  
of open market  
operations



## Main refinancing operations

### Functions of main refinancing operations

As mentioned above, the main refinancing operations are the most important open market operations conducted by the Eurosystem. They play a pivotal role in steering interest rates, managing the liquidity situation in the market and signalling the stance of monetary policy (through the main refinancing rate set by the Governing Council). They also provide the bulk of liquidity to the banking system. Main refinancing operations are executed in a decentralised manner by the NCBs.

### Frequency and maturity

Main refinancing operations are liquidity-providing operations that are conducted on a weekly basis. In 2003 the Governing Council decided that their maturity would be reduced from two weeks to one week as of March 2004 (see Box 4.2).

### Standard tenders

Main refinancing operations are executed through standard tenders. In the context of the operational framework of the Eurosystem, “standard” indicates tender operations that are conducted in accordance with a pre-announced schedule, which is completed within a period of 24 hours from the announcement of the tender to the communication of the results. All counterparties fulfilling general eligibility criteria may participate in these operations. In principle, all credit institutions located in the euro area are potentially eligible counterparties of the Eurosystem (see Box 4.1).

### Fixed and variable rate tenders

The Eurosystem may execute its tenders in the form of fixed rate or variable rate tenders. In the former, the interest rate is specified in advance by the Governing Council and counterparties bid the amount of

money they wish to transact at the fixed interest rate. In the latter, counterparties bid both the amount of money they wish to transact and the interest rate at which they wish to enter into the transaction. The Governing Council may set a minimum bid rate for variable rate tenders, in order to signal the monetary policy stance.

Under both tender procedures, the ECB decides on the amount of liquidity provided. In a fixed rate tender, this normally implies a pro rata allotment of the individual bank bids, depending on the ratio between total bids and total liquidity to be allotted. In a variable rate tender, the bids with the highest interest rates are satisfied first, followed by bids with successively lower rates, until the total amount of liquidity to be provided is exhausted. At the lowest accepted rate, the “marginal rate of allotment”, bids are satisfied pro rata in line with the ECB’s decision on the total amount of liquidity to be allotted. For each individual allotment, the interest rate is equal to the interest rate bid.

From the beginning of 1999 to June 2000 the Eurosystem conducted its main refinancing operations as fixed rate tenders. Since 27 June 2000 the main refinancing operations have been conducted as variable rate tenders with a minimum bid rate using a multiple rate procedure. The reason for the change was severe overbidding in the fixed rate main refinancing operations, which resulted from the existence of a wide and persistent spread between money market interest rates and the fixed rate applied to the main refinancing operations in early 2000. This spread was, in turn, largely driven by market expectations of

Use of tender procedures since 1999

#### **Box 4.2 Changes to the maturity of the main refinancing operations and the reserve maintenance period as of March 2004**

As noted in Section 4.4, there have been periods of tension in the past when pronounced speculation on an imminent interest rate change has affected counterparties' bidding in the main refinancing operations. On several occasions in spring 2000, when expectations were high that the key ECB interest rates were about to be increased, counterparties submitted increasingly excessive bids in the main refinancing operations which were at the time conducted as fixed rate tenders (leading to what is known as "overbidding"). Similarly, expectations of an imminent reduction in the key ECB rates on occasion led counterparties to submit bids that on aggregate fell short of the amount needed to ensure that the reserve requirements were met ("underbidding").

Both problems stemmed mainly from the fact that the timing of the reserve maintenance periods – which started on the 24th calendar day of each month and ended on the 23rd calendar day of the following month – was independent of the dates of the Governing Council meetings at which changes to the key ECB rates were decided. Thus changes to the key ECB interest rates could occur within a reserve maintenance period. In addition, the maturity of the weekly main refinancing operations (which was two weeks) was such that at least the last operation of each reserve maintenance period overlapped with the subsequent reserve maintenance period. As a result, bidding behaviour in the main refinancing operations conducted at the end of a maintenance period could be affected by expectations of changes in the key ECB interest rates in the next reserve maintenance period.

To respond to this problem, in 2003 the Governing Council decided on two measures – effective as of March 2004 – to prevent rate change speculation during a maintenance period from affecting very short-term money market conditions: (i) the timing of the start of the reserve maintenance periods was changed, and (ii) the maturity of the main refinancing operations was shortened to one week.<sup>1</sup> Specifically, it was decided that, with effect from March 2004, maintenance periods would start on the settlement day of the first main refinancing operation following the Governing Council meeting at which the monthly assessment of the monetary policy stance was pre-scheduled, and would end on the day preceding the corresponding settlement day in the following month. This direct relationship between the Governing Council meeting and the start of the reserve maintenance period shall ensure that, as a rule, there are no expectations of changes to the key ECB rates occurring during a reserve maintenance period. The reduction of the maturity of the main refinancing operations aimed at eliminating the spillover of interest rate speculation from one reserve maintenance period to the next. The objective of the combined measures was to contribute towards stabilising the conditions in which credit institutions bid in the main refinancing operations.

<sup>1</sup> Maintenance periods prior to March 2004: from the 24th calendar day of each month to the 23rd calendar day of the following month.

further increases in ECB interest rates, especially in the spring of 2000. The spread between market rates and the

ECB's main refinancing rate made it very attractive for banks to obtain funds from the central bank and led to

very high bids by the banks. In a variable rate tender, by contrast, banks have no incentive to overbid, since they would have to pay a higher price if they wanted to obtain more liquidity.

However, a different problem arose with variable rate tenders with a minimum bid rate. In a few cases, the aggregate of all bids submitted in the tender was lower than the amount needed for the smooth fulfilment of reserve requirements (“underbidding”). As these episodes also stemmed from significant interest rate speculation, the Governing Council decided to adjust its operational framework as of March 2004 (see Box 4.2).

refinancing operations, these longer-term refinancing operations are conducted as standard tenders in a decentralised manner, and all counterparties fulfilling general eligibility criteria may participate (see Box 4.1).

Since it was not considered desirable for the Eurosystem to influence money market rates at more than one point along the maturity spectrum, the longer-term refinancing operations have been designed to ensure that the Eurosystem acts as a “rate taker” in these operations. In order not to blur the signal arising from the Eurosystem’s main refinancing operations, longer-term refinancing operations are executed in the form of pure variable rate tenders with pre-announced allotment volumes. The Governing Council indicates in advance the volume to be allotted in forthcoming tenders.

**Eurosystem as a “rate taker”**

On average, longer-term operations accounted for 26% of the outstanding amount of open market operations from January 1999 to June 2003. In the first two months of 1999 the longer-term refinancing operations were conducted as variable rate tenders using a single rate procedure (i.e. all successful bids were allotted at the same interest rate). After March 1999 they were conducted as variable rate tenders using a multiple rate procedure (i.e. bids were satisfied at the individual bid rates).

**Provision of additional liquidity**

### **Fine-tuning operations**

The Eurosystem may also carry out open market operations on an ad hoc basis, i.e. fine-tuning operations. The frequency and maturity of such operations are not standardised. Fine-tuning operations can be liquidity-absorbing or liquidity-

**Fine-tuning operations**

**Publication of liquidity needs**

Upon switching to variable rate tenders, the Eurosystem also started to announce, each week, the estimated liquidity needs of the banking system for the period until the day before the settlement of the next main refinancing operation. The publication of this estimate assists counterparties in preparing their bids for the forthcoming main refinancing operation. Section 4.6 describes the factors which determine the liquidity needs of the banking system.

**Longer-term refinancing operations**

### **Longer-term refinancing operations**

In addition to the weekly main refinancing operations, the Eurosystem also executes monthly longer-term refinancing operations with a three-month maturity. These operations aim at providing longer-term liquidity to the banking system. This is deemed useful in order to prevent all the liquidity in the money market from having to be rolled over each week or every two weeks, and to give counterparties access to longer-term refinancing. Like the main

### Box 4.3 Types of open market transactions

Reverse transactions are the main open market instrument of the Eurosystem and can be used for all kinds of liquidity-providing open market operations. The Eurosystem has three other instruments available to it for the conduct of fine-tuning operations: outright transactions, foreign exchange swaps and the collection of fixed-term deposits. Finally, for structural operations the ECB may issue debt certificates (see Table 4.1).

#### 1. Reverse transactions

Reverse transactions refer to operations where the Eurosystem buys or sells eligible assets under repurchase agreements or conducts credit operations against eligible assets provided as collateral. Reverse transactions are used for the main refinancing operations and the longer-term refinancing operations. In addition, the Eurosystem can use reverse transactions for structural and fine-tuning operations.

Where a reverse transaction takes the form of a repurchase agreement, the difference between the purchase price and the repurchase price corresponds to the interest due on the amount of money borrowed or lent over the maturity of the operation, i.e. the repurchase price includes the interest to be paid. The interest rate on a reverse transaction in the form of a collateralised loan is determined by applying the specified interest rate on the credit amount over the maturity of the operation.

#### 2. Outright transactions

Outright open market transactions refer to operations where the Eurosystem buys or sells eligible assets outright on the market. Outright open market operations are only available for structural and fine-tuning purposes.

#### 3. Foreign exchange swaps

Foreign exchange swaps executed for monetary policy purposes consist of simultaneous spot and forward transactions in euro against a foreign currency. They can be used for fine-tuning purposes, mainly in order to manage the liquidity situation in the market and to steer interest rates.

#### 4. Collection of fixed-term deposits

The Eurosystem may invite counterparties to place remunerated fixed-term deposits with the NCB in the Member State in which the counterparty is established. The collection of fixed-term deposits is envisaged only for fine-tuning purposes in order to absorb liquidity in the market.

#### 5. Issuance of ECB debt certificates

The ECB may issue debt certificates with the aim of adjusting the structural position of the Eurosystem vis-à-vis the financial sector so as to create or increase a liquidity shortage in the market.

providing. They aim at managing the liquidity situation and steering interest rates in the money market, in particular to smooth the effects on interest rates of

unexpected liquidity fluctuations in the money market. Fine-tuning operations are also important to support the normal functioning of the markets and to

provide liquidity in highly exceptional circumstances, as was the case after the terrorist attacks in the United States on 11 September 2001.

Fine-tuning operations can take the form of reverse transactions, outright transactions, foreign exchange swaps and the collection of fixed-term deposits, all of which are described in Box 4.3. However, given the many other instruments in use by the Eurosystem, only very limited recourse is needed to fine-tuning operations. By the end of June 2003 the Eurosystem had conducted only eight fine-tuning operations, i.e. less than two per year on average.

#### Quick tenders and bilateral procedures

In view of their purpose, fine-tuning operations are normally executed through “quick” tenders. These take one hour from their announcement to the communication of the allotment results. Fine-tuning operations can also be executed through bilateral procedures, where the Eurosystem conducts a transaction with one or a few counterparties without a tender.

#### High degree of flexibility

The potential need for rapid action in the event of unexpected market developments makes it desirable for the Eurosystem to retain a high degree of flexibility in the specification of fine-tuning operations. They are normally executed in a decentralised manner by the NCBs, but the Governing Council can decide, under exceptional circumstances, to have bilateral fine-tuning operations executed by the ECB. For operational reasons, only a limited number of selected counterparties may participate in fine-tuning operations.

#### Structural operations

#### Structural operations

The operational framework also provides the Eurosystem with the

possibility of conducting “structural operations”. Such operations seek to adjust the structural liquidity position of the Eurosystem vis-à-vis the banking system, i.e. the amount of liquidity in the market over the longer term. These operations could be conducted using reverse transactions, outright operations or the issuance of debt certificates (see Box 4.3). By the end of June 2003 the Eurosystem had not conducted any such operations aimed at influencing the structural liquidity position of the banking system.

In principle, structural operations can be liquidity-providing or liquidity-absorbing operations and their frequency can be regular or non-regular. Structural operations could be executed through standard tenders and their maturity would not be standardised. Structural operations could be executed in a decentralised manner, and all counterparties fulfilling general eligibility criteria would be allowed to participate.

#### 4.5 STANDING FACILITIES

As mentioned above, the Eurosystem also implements monetary policy by setting the interest rates on its standing facilities. Standing facilities provide or absorb liquidity with an overnight maturity on the initiative of counterparties. Two standing facilities are available to eligible counterparties: the marginal lending facility and the deposit facility. There is little incentive for banks to use standing facilities as the interest rates applied to them are normally unfavourable when compared with market rates.

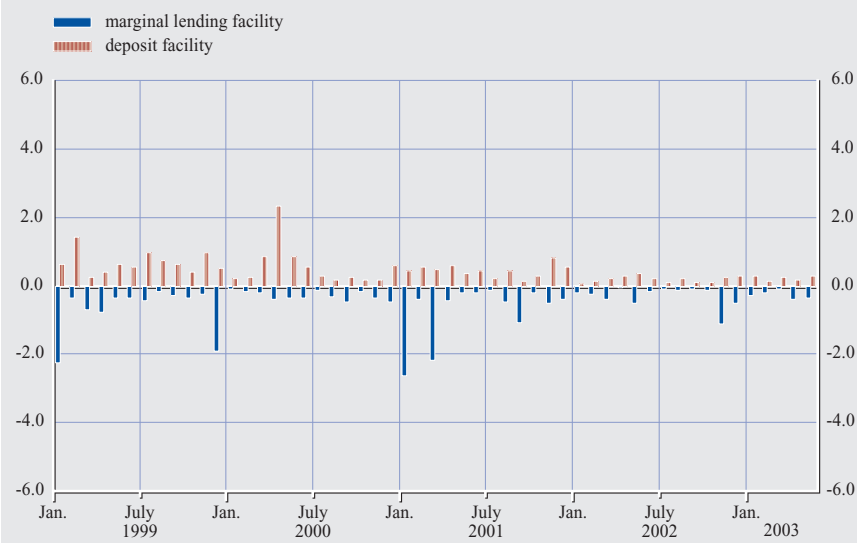
Marginal lending and deposit facilities are...

Chart 4.3 shows the average daily use of the standing facilities from January 1999 to June 2003. This mostly

...important in exceptional circumstances...

**Chart 4.3 Recourse to standing facilities from January 1999 to June 2003**

(EUR billions; averages of daily positions over the maintenance period)



Source: ECB.

remained below €1 billion, demonstrating that they serve only to provide and absorb liquidity in exceptional circumstances. The introduction of the euro at the beginning of 1999 and the transition to the year 2000 were examples of such exceptional circumstances, and explain the relatively high level of recourse to the marginal lending facility in the maintenance periods ending in February 1999<sup>12</sup> and January 2000 respectively.

...and at the end of the reserve maintenance period

Chart 4.4 reflects the typical pattern of recourse to the standing facilities within a reserve maintenance period. As can be seen from the chart, the use of the standing facilities is largest at the end of the reserve maintenance period. This is due to the averaging mechanism of the minimum reserve system, which allows credit institutions to run daily liquidity

deficits and surpluses and either bring forward the fulfilment of reserve requirements or postpone it until the end of the maintenance period. As previously noted, reserve requirements become binding only on the last day of the maintenance period when liquidity deficits or surpluses can no longer be compensated by opposite imbalances within the same maintenance period.

#### 4.6 CENTRAL BANK LIQUIDITY AND THE LIQUIDITY NEEDS OF THE BANKING SYSTEM

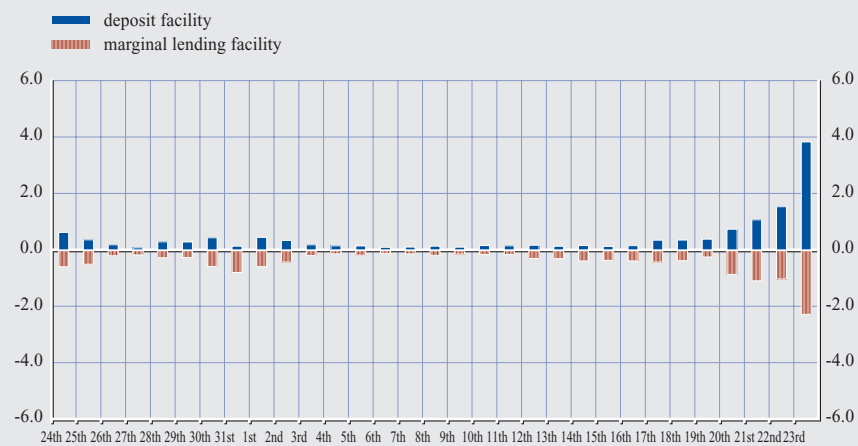
To sum up, the operational framework is the set of instruments and procedures which a central bank uses to steer interest rates, manage liquidity in the money market and signal monetary policy intentions through the ECB's key interest rates set by the Governing Council. The euro area banking system – on account of its

Eurosystem as a supplier of liquidity

<sup>12</sup> The first maintenance period was longer than normal, starting on 1 January 1999 and ending on 23 February 1999.

**Chart 4.4 Recourse to standing facilities within a maintenance period**

(EUR billions; average of daily positions from February 1999 to June 2003)



Source: ECB.

need for banknotes and the obligation to fulfil reserve requirements, in particular – has an aggregate liquidity deficit and is reliant on refinancing from the Eurosystem. In this environment, the Eurosystem acts as a supplier of liquidity and can thus steer money market interest rates and transmit monetary policy impulses across the euro area.

The interaction between the Eurosystem and the banking system can be illustrated with the help of the consolidated balance sheet of the Eurosystem. Table 4.3 presents a simplified form of a standardised central bank balance sheet.

**Assets** On the assets side, there are three main liquidity-providing items: “refinancing to credit institutions”, “marginal lending facility” and “net foreign assets”. Refinancing to credit institutions refers to the amount outstanding of liquidity-providing open market operations. In the case of the Eurosystem, these operations

always include the main and longer-term refinancing operations. Liquidity-providing fine-tuning operations and structural operations would also be included under this item. The marginal lending facility refers to overnight credit provided by the central bank to those credit institutions that have recourse to this facility. Net foreign assets refers to assets in foreign currency owned by the central bank, net of any central bank liabilities denominated in foreign currency.

On the liabilities side, there are five main items. These are “credit institutions’ holdings on current accounts”, the “deposit facility”, “banknotes in circulation”, “government deposits” and “other net factors”. Credit institutions’ holdings on current accounts refers to balances owned by credit institutions and held with the central bank in order to meet settlement obligations from interbank transactions and to fulfil reserve requirements (also referred to merely as “reserves”). The deposit facility refers to the total

**Liabilities**

**Consolidated balance sheet of the Eurosystem**

<b>Table 4.3 Central bank balance sheet structure</b>	
<b>A standardised central bank balance sheet:</b>	
<b>Assets</b>	<b>Liabilities</b>
Refinancing to credit institutions	Credit institutions' holdings on current accounts (reserves)
Marginal lending facility	Deposit facility
Net foreign assets	Banknotes in circulation
	Government deposits
	Other factors (net)
<b>Can be rearranged as follows:</b>	
Liquidity supply through monetary policy operations	
"refinancing to credit institutions"	
plus "marginal lending facility"	
minus "deposit facility"	
<b>equals</b>	
Autonomous factors	
"banknotes in circulation"	
plus "government deposits"	
minus "net foreign assets"	
plus "other factors (net)"	
<b>plus</b>	
Reserves	
"credit institutions' holdings on current accounts"	

overnight recourse to this standing facility. Banknotes indicates the value of the banknotes put into circulation by the central bank at the request of credit institutions. This is usually the largest item on the liabilities side. Government deposits reflects the existence of current account balances held by national treasuries with NCBs. Finally, other net factors is a balancing item encompassing the remaining items on the balance sheet.

#### Liquidity supply and demand

From an accounting point of view, the respective amounts of total assets and liabilities must always be equal. In order to understand how a central bank operates, it is convenient to split the balance sheet into three elements, as

indicated by the lower three panels of Table 4.3.

As shown in the table, the net amount of liquidity that is actually supplied by the central bank to credit institutions is the sum of two elements. The first element is made up of the "autonomous factors" (the sum of banknotes in circulation plus government deposits minus net foreign assets plus other factors (net), which is the net effect of the remaining balance sheet items affecting money market liquidity). These factors influence the liquidity of the banking system and are labelled "autonomous" in central bank jargon because they are not normally the result of the use of monetary policy instruments.<sup>13</sup>

<sup>13</sup> Some of the autonomous factors are not under the control of the monetary authorities (banknotes in circulation and government deposits). Other factors, such as net foreign assets, can be controlled by the monetary authorities, but transactions in these assets are not normally related to monetary policy operations (except in the case of foreign exchange swaps; see Box 4.2).



**Table 4.4 Contributions to the banking system's liquidity**

(EUR billions; daily average stocks from 24 May 2003 to 23 June 2003)

	<b>Liquidity- providing (Assets)</b>	<b>Liquidity- absorbing (Liabilities)</b>	<b>Net contribution</b>
<b>Monetary policy operations of the Eurosystem</b>			
Main refinancing operations	194.7	–	+ 194.7
Longer-term refinancing operations	45.0	–	+ 45.0
Other open market operations	0.0	0.0	0.0
Standing facilities	0.4	0.3	+ 0.1
Total (a)	240.1	0.3	+ 239.8
<b>Autonomous factors affecting the banking system's liquidity</b>			
Banknotes in circulation	–	373.2	- 373.2
Government deposits with the Eurosystem	–	52.6	- 52.6
Net foreign assets	331.3	–	+ 331.3
Other factors (net)	–	13.2	- 13.2
Total (b)	331.3	439.0	- 107.7
<b>Reserves = credit institutions' holdings on current accounts with the Eurosystem</b>			
Required reserves (c)			131.5
Excess reserves (d)			0.6
Total (a)+(b), (c)+(d)			132.1

Source: ECB.

The second element is made up of credit institutions' reserves (credit institutions' holdings on current accounts). The sum of the autonomous factors plus the reserves equals the supply of liquidity through monetary policy operations (the sum of refinancing to credit institutions plus marginal lending facility minus deposit facility).

Moving from this schematic analysis to the Eurosystem's actual balance sheet, Table 4.4 shows the contributions of the main items to the banking system's liquidity in the reserve maintenance period from 24 May 2003 to 23 June 2003. The bulk of the liquidity was provided through the main refinancing operations. Additional liquidity was provided through the longer-term refinancing operations. Standing facilities and other operations, such as

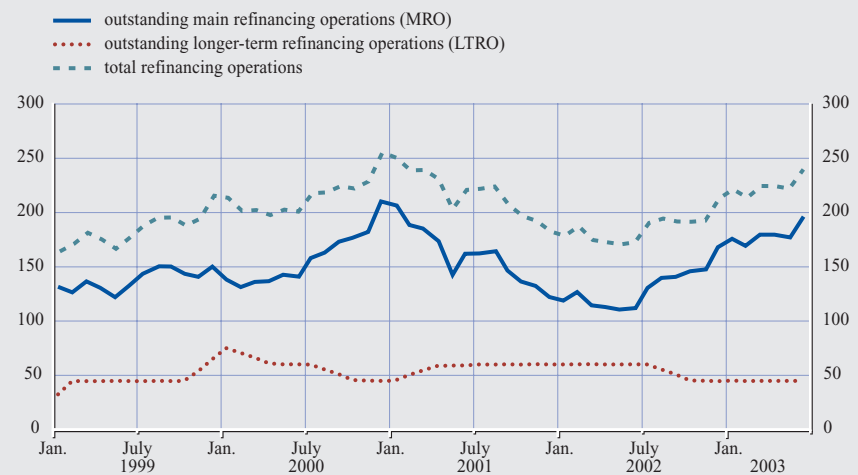
fine-tuning operations, normally have only a marginal impact on the banking system's liquidity.

The second part of Table 4.4 shows the autonomous factors. The liquidity-absorbing effect of autonomous factors is mainly generated by banknotes in circulation and government deposits with the Eurosystem. Banknotes in circulation absorb the banking system's liquidity because they have to be obtained from the central bank, and credit institutions have to borrow funds from the central bank because of this. There is also a counter-effect on the banking system's liquidity relating to the net foreign assets held by the Eurosystem. Purchases of foreign assets by the Eurosystem inject liquidity into the banking system and reduce the need for liquidity-providing monetary policy operations. Required

#### Contributions of the main items

## Chart 4.5 Volume of the main and longer-term refinancing operations

(EUR billions; averages of daily positions over the maintenance period)



Source: ECB.

reserves have a liquidity-absorbing effect which is similar in size to that of all the autonomous factors taken together. The difference between credit institutions' holdings on current accounts with the Eurosystem and reserve requirements makes up the excess reserves (which generally have been very low at around 0.5% of required reserves in the euro area).

Relative importance of liquidity-providing factors

Charts 4.5 and 4.6 show how the main liquidity-providing and liquidity-absorbing factors developed from January 1999 to June 2003. Chart 4.5 shows that the bulk of the liquidity was provided through the main refinancing operations, reflecting the key role played by this monetary policy instrument. Additional liquidity was provided through the longer-term refinancing operations. As can be seen from Chart 4.5, this amount ranged between €45 and €75 billion over the period under consideration.

Chart 4.6 shows the development of the two main factors that create a structural liquidity deficit in the banking system. Reserve requirements have usually accounted for more than half of the total liquidity needs of the banking system. The total liquidity-absorbing effect of autonomous factors has varied more over time, reflecting in particular the large decrease in banknotes in circulation before the cash changeover in January 2002 and the significant rebound afterwards.

Relative importance of liquidity-absorbing factors

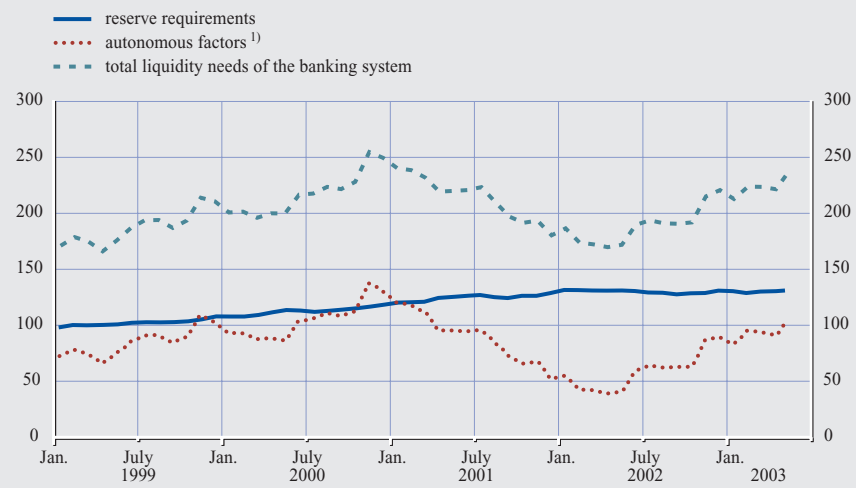
### 4.7 EXPERIENCE FROM JANUARY 1999 TO JUNE 2003

The Eurosystem's operational framework has been functioning well since the start of 1999. The operational framework has generally allowed the ECB to steer liquidity conditions and short-term interest rates in a smooth fashion. The only exceptions were a few occasions of underbidding and overbidding in the main refinancing operations. However, the average volatility of short-term

Low volatility of short-term interest rates

## Chart 4.6 Required reserves and autonomous liquidity factors

(EUR billions; averages of daily positions over the maintenance period)



Source: ECB.

1) Autonomous factors include banknotes in circulation plus government deposits plus other factors less net foreign assets.

interest rates in the euro area money market in the first years of Stage Three of EMU has remained low by international standards. This low volatility of short-term money market rates was achieved with very little recourse to fine-tuning operations, i.e. almost entirely through a combination of a minimum reserve system with an averaging provision and weekly open market operations.

Stable money market conditions are helpful for the efficient transmission of monetary policy to the economy. In addition, they reflect a high degree of credibility of the operative and liquidity management capabilities of the central bank.

The conduct of fixed rate tender operations in the main refinancing operations until June 2000 facilitated the clear signalling of the monetary policy stance. This positive assessment of clear signalling has also been valid for the variable rate tender procedure

with a minimum bid rate applied as from June 2000. This system has worked well, as indicated by the relatively small spread between the marginal rate of allotment and the minimum bid rate. Moreover, the volatility of short-term money market rates has been kept as low as it was during the period of fixed rate tenders.

Finally, the operational framework – with both weekly main refinancing operations and monthly longer-term refinancing operations – has met the objectives of both providing longer-term liquidity to credit institutions and providing the Eurosystem with sufficient flexibility to steer liquidity developments with adequate precision in the short term. The operational framework has also proved robust when faced with a series of exceptional challenges, e.g. the transition to the year 2000 and the terrorist attacks of 11 September 2001, and has shown a very high degree of flexibility to deal with unforeseen circumstances.

**Flexible  
operational  
framework**

**Clear signalling  
of the monetary  
policy stance**

## 5 THE CONDUCT OF MONETARY POLICY IN THE FIRST YEARS OF THE SINGLE MONETARY POLICY

This chapter illustrates how monetary policy was conducted in the euro area between 1999 and mid-2003. Over this period the euro area was confronted with a host of economic shocks whose nature, size and persistence varied over time. Against this backdrop, the Governing Council took its monetary policy decisions with a clear focus on the need to maintain price stability over the medium term.

### 5.1 INTRODUCTION

Priority to the maintenance of price stability over the medium term

Since the beginning of Stage Three of EMU in 1999 the conduct of monetary policy in the euro area has been guided by the overriding objective of maintaining price stability over the medium term. In assessing risks to price stability in the euro area, the Governing Council has always relied on the framework as laid down in its monetary policy strategy, implying a comprehensive analysis of both economic and monetary trends in the euro area (see Chapter 3).

Change in the frequency of Governing Council meetings assessing the monetary policy stance

In the first years of Monetary Union the Governing Council assessed the monetary policy stance at meetings held every two weeks. In November 2001, however, the Governing Council decided that henceforth, it would – as a rule – assess the monetary policy stance only at its first meeting of the month. Accordingly, it was announced that interest rate decisions would normally be taken during that meeting, while at the second meeting of the month the Governing Council would focus on issues related to the other tasks and responsibilities of the ECB and the Eurosystem.

Overall, three phases can be distinguished as regards the direction of monetary policy between January 1999 and June 2003 (see Chart 4.1). At the start of 1999 a combination of factors that had already been affecting the countries joining the euro area in 1998 increased downward risks to price stability in the euro area. In reaction to this, the Governing Council decided in April 1999 to reduce the fixed rate on the main refinancing operations to 2.5%.

Three phases can be distinguished: launch of Stage Three until the summer of 1999,...

Later, between the summer of 1999 and late 2000, inflationary pressures gradually mounted in a context of strong economic growth, increasing import price pressures driven by rising oil prices and a weakening exchange rate, and high monetary growth. In this context, the Governing Council gradually increased its key interest rates by a total of 225 basis points from November 1999 to October 2000.

...summer of 1999 to late 2000...

Subsequently, following a period of mixed signals around the turn of 2000, as from spring 2001 the evidence increasingly supported the view that inflationary pressures were gradually abating. The main factors reducing

...and a third phase which started in spring 2001

inflationary pressures were subdued economic growth and a stronger euro exchange rate in a context of a marked adjustment in the financial markets and high geopolitical uncertainty. Against this background, the Governing Council gradually reduced the key ECB interest rates by 275 basis points between May 2001 and June 2003. The challenges faced by the single monetary policy in its first four and a half years are explained in more detail in the next section.

## 5.2 MAIN DEVELOPMENTS

Transfer of the responsibility for monetary policy to the ECB

The convergence process leading to Stage Three of EMU was successfully completed when the ECB assumed responsibility for monetary policy in the euro area on 1 January 1999. Price stability had been achieved in the countries forming the euro area, allowing the Governing Council to start its operations at a time when interest rates were already at very low

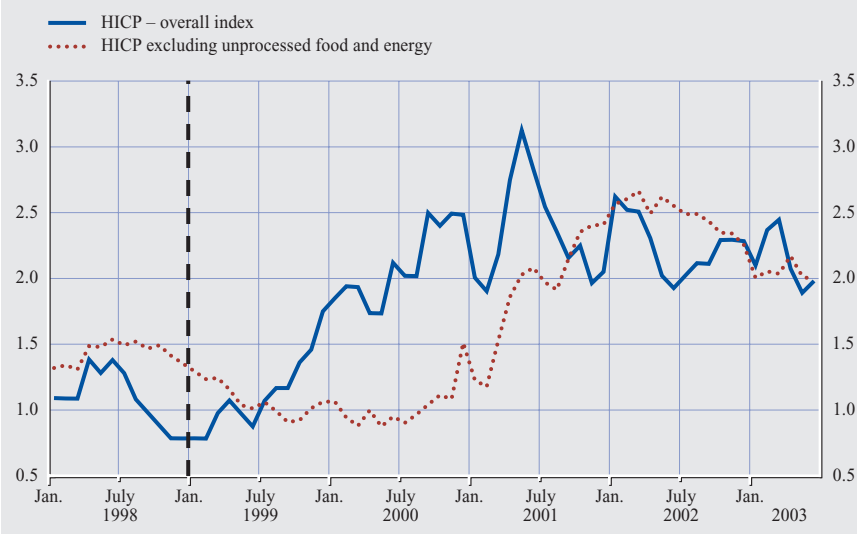
levels. The first interest rate on the main refinancing operations was set at 3%, with the rates on the marginal lending and deposit facilities set at 4.5% and 2% respectively. These rates were announced on 22 December 1998, following the 3 December coordinated reduction of key interest rates by all the NCBs of the countries set to adopt the euro from the outset.

In the first quarter of 1999 price developments remained subdued, mainly on account of the effects of earlier positive supply shocks related, in particular, to the fall in oil prices and deregulation in the services sector. In early 1999 HICP inflation was below 1% (see Chart 5.1). In this low-inflation environment, downside risks to economic growth emerged as a consequence of weaker external demand stemming from the Asian crisis of late 1997 and the drop in confidence that followed the financial market turmoil after the Russian crisis of the summer

Downward risks to price stability in early 1999...

Chart 5.1 HICP inflation

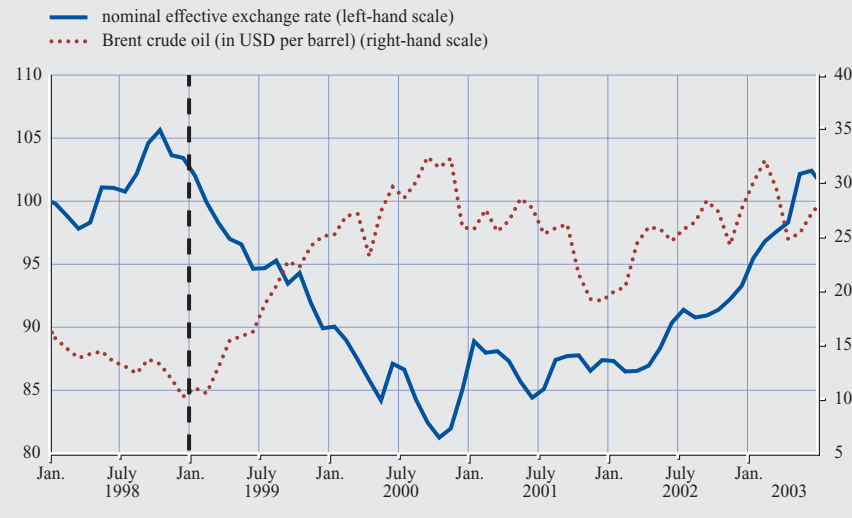
(annual percentage changes)



Source: Eurostat.

## Chart 5.2 Nominal effective exchange rate of the euro and oil prices

(monthly averages: index 1999 Q1=100)



Sources: ECB and Reuters.

of 1998. It thus became increasingly clear that risks to price stability over the medium term were to the downside. At the same time, however, some

indicators were seen as pointing in the opposite direction. Despite the economic slowdown, consumer confidence remained relatively high.

## Chart 5.3 M1 and loans to the private sector

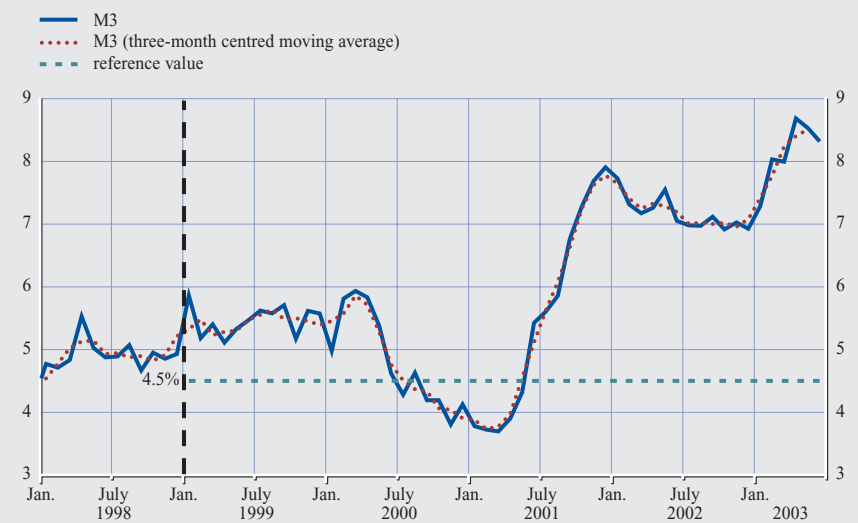
(annual percentage changes)



Source: ECB.

**Chart 5.4 M3 growth and the reference value**

(annual percentage changes)



Source: ECB.

Furthermore, oil prices started to rise as from mid-February, and the euro depreciated slightly in effective terms in the first few months of the year (see Chart 5.2). Finally, over the same period loans to the private sector were growing at an annual rate of around 10% (see Chart 5.3) and M3 growth was also clearly above the ECB's reference value of 4½% (see Chart 5.4). Monetary developments were nevertheless not seen as implying upward risks to price stability at that time, partly because the deviations from the reference value were neither significant nor protracted.

**Key ECB interest rates were reduced in April 1999**

In view of these considerations, on 8 April 1999 the Governing Council decided to reduce the main refinancing rate by 50 basis points to 2.5%. Simultaneously, the Council lowered the rate on the marginal lending facility to 3.5% and that on the deposit facility to 1.5%. These decisions were deemed appropriate as a precautionary

measure to preserve price stability in the medium term.

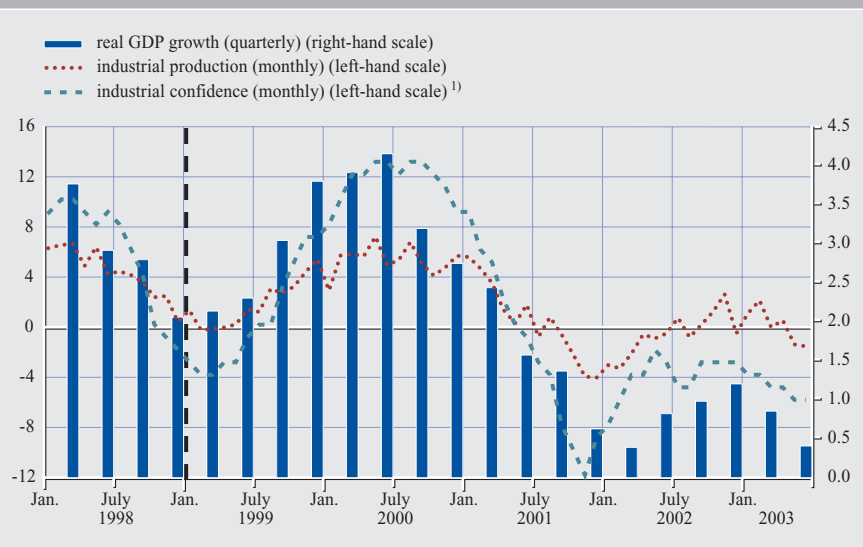
It subsequently became clear as of the summer of 1999 that economic growth was set to accelerate significantly in the second half of that year and in 2000. Indeed, at that time most real economic indicators were increasingly pointing to an economic upswing (see Chart 5.5).

**The economic environment improved gradually from mid-1999,...**

In this context, developments in import prices increased price pressures in the euro area. Events on both the supply and the demand side of the oil market led to a steady rise in oil prices between mid-1999 and late 2000, while the euro exchange rate depreciated significantly. As a consequence, annual HICP inflation in the euro area crept up gradually over this period, reaching levels above 2%, the upper bound of the ECB's definition of price stability. Measures of HICP inflation excluding unprocessed food

**...import prices increased price pressures,...**

**Chart 5.5 Real GDP, industrial production and industrial confidence for the euro area**



Sources: Eurostat and European Commission Business and Consumer surveys.  
 1) Deviations from the average since January 1985.

and energy remained at relatively low levels during this period despite relatively buoyant economic growth. However, there were increasing concerns that inflationary pressures from import prices could have secondary effects via wage and price-setting behaviour and thus lead to an increase in the long-term inflation expectations of the public at large (see Chart 5.6).

Against this background, the Governing Council increased the key ECB interest rates in a series of steps between November 1999 and October 2000 by a total of 225 basis points. By late 2000 these decisions left the minimum bid rate on the main refinancing operations<sup>14</sup> at 4.75%, and the rates on the deposit and marginal lending facilities at 3.75% and 5.75% respectively.

...which led to gradual increases in the key ECB interest rates

...and the monetary expansion became entrenched...

Another cause for concern was the fact that annual monetary growth continued to increase significantly in late 1999 and early 2000 and eventually reached levels above 6%. The protracted monetary expansion indicated that abundant liquidity had been progressively accumulated. Furthermore, the annual rate of growth of loans to the private sector continued to hover at a rate of around 10%.

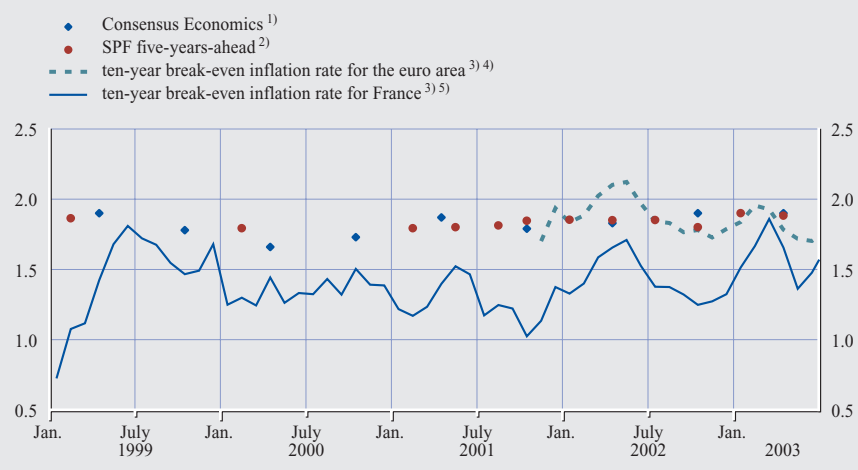
Having declined continuously since late 1998, the euro exchange rate had become increasingly out of line with the sound fundamentals of the euro area and risked generating significant misalignments, with adverse implications for the world economy and for price stability in the euro area. The depreciation of the euro was therefore addressed at the level of the G7 on 22 September 2000, at the

Intervention in the foreign exchange markets in the autumn of 2000

<sup>14</sup> In June 2000 the ECB moved from a fixed rate tender to a variable rate tender with a minimum bid rate (MBR) on its main refinancing operations.



**Chart 5.6 Indicators of long-term inflation expectations in the euro area**



Sources: French Treasury, Reuters, Consensus Economics and ECB.

- 1) Survey of prominent financial and economic forecasters as published by Consensus Economics Inc. This measure of long-term inflation expectations refers to an annual rate of inflation expected to prevail between six and ten years ahead.
- 2) Survey of Professional Forecasters conducted by the ECB on different variables at different horizons. Participants are experts affiliated with institutions based within the European Union.
- 3) The break-even inflation rate reflects the average value of inflation expectations over the maturity of the index-linked bond. It is calculated as the difference between the nominal yield on a standard bond and the real yield on an inflation index-linked bond, issued by the same issuer and with similar maturity.
- 4) Issued by the French Government linked to the French CPI excluding tobacco.
- 5) Issued by the French Government linked to the euro area HICP excluding tobacco.

initiative of the ECB, in the form of a concerted intervention in the foreign exchange markets by the ECB and the monetary authorities of the United States, Japan, the United Kingdom and Canada. The ECB itself intervened again in early November. Subsequent to these interventions, the downward trend of the exchange rate of the euro came to a halt in late 2000.

These short-term price pressures contrasted somewhat with real economic developments. Already by late 2000 the global economy was showing indications of weakness. The first signs of a slowdown in the United States, which became apparent after the strong decline in stock market prices from the peaks recorded in early 2000, and a worsening of the situation in Japan, gave rise to increasing uncertainty about global growth prospects.

**Economic activity started to show signs of weakness in late 2000 and 2001,...**

**HICP inflation continued to rise in early 2001**

Mainly as a result of increases in unprocessed food prices related to animal diseases, annual HICP inflation continued to increase in early 2001, peaking at 3.4% in May (later revised down to 3.1%). At the same time, the pace of wage growth rose and contributed to higher HICP inflation excluding unprocessed food prices and energy.

In the euro area, too, some signs of a slowdown in economic growth emerged in early 2001. In fact, all forecasts available in late 2000 and early 2001 predicted a gradual decline in real GDP growth in the euro area towards levels broadly in line with

**...also in the euro area,...**

trend potential growth later in 2001. In addition, the risks to these forecasts were increasingly tilted to the downside, given the deteriorating international economic outlook.

...and monetary growth also declined

M3 growth continued to decline in early 2001, and annual M3 growth remained at levels below the reference value, as a consequence of a considerable dampening of the expansion of its most liquid components (included in the narrow aggregate M1), probably reflecting the impact of the increase in the key ECB interest rates since November 1999. The annual growth rate of loans to the private sector also moderated as of the beginning of 2001.

The Governing Council reduced the key ECB interest rates in May 2001

Overall, both monetary developments and the weakening of the economic growth outlook signalled lower inflationary pressures. Against this background, the Governing Council decided to lower the key ECB interest rates by 25 basis points on 10 May and again on 30 August 2001.

The terrorist attacks on the United States were a major shock to the world economy

The terrorist attacks on the United States on 11 September 2001 increased the degree of economic uncertainty and undermined confidence and therefore had the potential to reinforce the downward trend in economic activity. In these circumstances, with the prospects for economic growth already weakening in the euro area prior to the terrorist attacks, downside risks to economic growth increased while inflationary pressures were expected to recede. Following an extraordinary meeting held by teleconference on 17 September 2001, the Governing Council reduced the key ECB interest rates by 50 basis points, in concert with equivalent decisions by the US

Federal Reserve System and other central banks around the world. This decision represented an exceptional response to exceptional circumstances and reflected the conviction that a prompt and concerted answer to this common global shock was needed.

In the aftermath of the terrorist attacks it became increasingly clear that economic activity in the euro area would remain subdued in the second half of 2001 and in early 2002. At the same time, the impact of the shocks that pushed up the price level stemming from the increase in oil prices and the depreciation of the euro's foreign exchange rate in 1999 and 2000, as well as from the food price increases seen in early 2001, was gradually beginning to fade.

Moreover, while monetary growth was strong, this was not seen as indicating upward risks to price stability. Indeed, it appeared that the continued decline in stock prices from the peaks observed in early 2000 had led many investors to shift their investments into safer and more liquid short-term assets. This process became further entrenched after the terrorist attacks on the United States in September 2001, since these increased financial market uncertainty. The fact that the growth of loans to the private sector was declining also allayed fears of upward pressure on prices in late 2001.

In view of all these developments, the key ECB interest rates were lowered by a further 50 basis points on 8 November 2001. This left the minimum bid rate on the main refinancing operation at 3.25% and the rates on the deposit facility and the marginal lending facility at 2.25% and 4.25% respectively.

After 11 September 2001 inflationary pressures continued to decline...

...while demand for liquid assets rose at a time of high uncertainty

The Governing Council reduced its key interest rates again in November 2001

**The prospects for economic activity seemed to improve in early 2002...**

In the first months of 2002 the downward risks to economic growth related to the terrorist attacks of 11 September appeared to be subsiding. Some indicators pointed to a recovery in economic activity in the euro area and in the world economy in general. Indeed, a moderate recovery of real GDP growth was recorded in the euro area in early 2002. However, despite the then widely held expectation that real economic growth would reach potential in the second half of 2002, the strength of the recovery remained surrounded by an unusually high degree of uncertainty, not least because of continued stock market weakness and high volatility.

**...but worsened again after the summer**

In the second half of 2002 concerns about the economic outlook intensified. The economic upturn turned out to be weaker than expected. Geopolitical tensions in the Middle East increased, as reflected in rising oil prices. At the same time there were increasing concerns about the reliability of the financial accounting information of corporations. This, combined with weaker than expected corporate earnings data, continued to weigh on equity prices in a context of high volatility. All these factors led to renewed downward revisions to expectations for economic growth in the euro area.

**HICP inflation remained relatively high...**

Nevertheless, HICP inflation remained above 2% in 2002. This was partly due to the effect of adverse weather conditions on food prices and to the increases in oil prices. There was also some upward impact on prices from the euro cash changeover<sup>15</sup>, in particular for certain services,

although the overall impact was small. Of some concern for the medium-term outlook for price stability was the fact that the less volatile components of inflation remained rather high in a context of subdued economic activity, and that nominal wage growth remained relatively strong despite the rise in unemployment.

However, the subdued economic activity was increasingly seen as a factor that would eventually limit the potential upward risks to price stability, as wage-related risks were less likely to materialise in this context. In addition, the appreciation of the exchange rate of the euro as of the spring of 2002 further helped to reduce inflationary pressures.

Monetary growth continued to be strong in 2002 and early 2003. As in 2001, this was partly the result of high volatility in financial markets, which heightened investors' preferences for short-term liquid and less risky financial assets. At the same time, however, it also reflected the relatively low interest rates in the euro area in 2002. Still, in view of the subdued economic activity prevailing in the euro area and continued moderate credit growth, the inflationary risks related to the strong monetary growth were considered to be low.

In view of all these developments, the Governing Council reduced the key ECB interest rates further between December 2002 and June 2003, by 125 basis points in total. These decisions provided some counterweight to the various factors having an adverse effect on economic activity and

**...although many elements pointed to lower inflationary pressures over the medium term**

**Monetary growth continued to be strong in 2002 and in 2003**

**As a consequence, key ECB interest rates were reduced to very low levels**

<sup>15</sup> At the start of Stage Three of EMU banknotes and coins were still denominated in the legacy currencies of the euro. Euro banknotes and coins were introduced on 1 January 2002.

thereby improved the outlook for price stability in the medium term. With these decisions, the minimum bid rate on the main refinancing operations reached 2% in June 2003. The rates on the marginal lending facility and deposit facility were then lowered to 3% and 1%, respectively.

### **5.3 AN ASSESSMENT OF MONETARY POLICY DURING THIS PERIOD**

**In a challenging environment of short-term inflationary pressures...**

In its early years, the single monetary policy had to be conducted in a very challenging environment in which a host of different shocks significantly affected short-term price developments. These shocks included the tripling of oil prices between early 1999 and mid-2000, a significant depreciation of the exchange rate of the euro over this period, and, in 2001, increases in food prices resulting from a series of livestock epidemics. In this environment of upward threats to prices, it was essential for monetary policy to prevent these developments from spilling over into inflation expectations and wage-price spirals.

**...the ECB acted with a medium-term perspective...**

At the same time, monetary policy had to react to these shocks with the appropriate medium-term orientation in order to limit volatility in output developments. This medium-term orientation also implied that monetary policy had to look through short-term movements in prices in order to appropriately steer longer-term price developments.

**...and maintained credibility**

Despite a series of adverse shocks to the inflation rate, the average annual rate of HICP inflation in the euro area between January 1999 and June 2003 was only slightly above 2%, the upper bound of the ECB's definition of price stability. At the same time, it is worth

noting that since the beginning of 1999 all indicators of long-term inflation expectations in the euro area remained almost constantly below but close to 2%. It is also notable that inflation expectations remained at those levels during periods of both rising and falling inflationary pressures. This is not only true for long-term inflation expectations revealed by surveys of private economists, but can also be seen in the long-term inflation expectations embedded in bond prices (see Chart 5.6). This indicates that the public and the markets have had faith in the ECB's determination to maintain price stability over the medium term. These are positive indications that, from the outset, the ECB was able to build its credibility and to convince the public and the markets that it intended to honour its commitment to maintain price stability in the medium term.



# ANNEX

## HISTORY – THE THREE STAGES OF ECONOMIC AND MONETARY UNION

In June 1988 the European Council confirmed the objective of the progressive realisation of economic union and mandated a Committee chaired by Jacques Delors, the then President of the European Commission, to study and propose concrete stages leading to this union. The Committee was composed of the governors of the EC national central banks; Alexandre Lamfalussy, the then General Manager of the Bank for International Settlements; Niels Thygesen, Professor of Economics, Copenhagen; and Miguel Boyer, the then President of the Banco Exterior de España. The resulting “Delors Report” proposed that economic and monetary union should be achieved in three discrete but evolutionary steps.

### **Stage One of EMU**

On the basis of the Delors Report, the European Council decided in June 1989 that the first stage of the realisation of economic and monetary union should begin on 1 July 1990 – the date on which, in principle, all restrictions on the movement of capital between Member States were abolished. At this time, the Committee of Governors of the Central Banks of the Member States of the European Economic Community, which had played an increasingly important role in monetary cooperation since its creation in May 1964, was given additional responsibilities. These were laid down in a Council Decision dated 12 March 1990 and included holding consultations on, and promoting the coordination of, the monetary policies of the Member States, with the aim of achieving price stability. In view of the relatively short time available and the complexity of the tasks involved, the preparatory work for Stage Three of Economic and Monetary Union (EMU) was also initiated by the Committee of Governors. The first step was to identify all the issues which should be examined at an early stage, to establish a work programme by the end of 1993 and to define accordingly the mandates of the existing sub-committees and working groups established for that purpose.

For the realisation of Stages Two and Three, it was necessary to revise the Treaty establishing the European Economic Community (the “Treaty of Rome”) in order to establish the required institutional structure. To this end, an Intergovernmental Conference on EMU was convened, which was held in 1991 in parallel with the Intergovernmental Conference on political union. The negotiations resulted in the Treaty on European Union which was agreed in December 1991 and signed in Maastricht on 7 February 1992. However, owing to delays in the ratification process, the Treaty (which amended the Treaty establishing the European Economic Community – changing its name to the Treaty establishing the European Community – and introduced, inter alia, the Protocol on the Statute of the European System of Central Banks and of the European Central Bank and the Protocol on the Statute of the European Monetary Institute) did not come into force until 1 November 1993.

## **Stage Two of EMU, establishment of the EMI and the ECB**

The establishment of the European Monetary Institute (EMI) on 1 January 1994 marked the start of the second stage of EMU and with this the Committee of Governors ceased to exist. The EMI's transitory existence also mirrored the state of monetary integration within the Community. The EMI had no responsibility for the conduct of monetary policy in the European Union – this remained the preserve of the national authorities – nor had it any competence for carrying out foreign exchange intervention.

The two main tasks of the EMI were:

- i. to strengthen central bank cooperation and monetary policy coordination; and
- ii. to make the preparations required for the establishment of the European System of Central Banks (ESCB), for the conduct of the single monetary policy and for the creation of a single currency in the third stage.

To this end, the EMI provided a forum for consultation and for the exchange of views and information on policy issues and it specified the regulatory, organisational and logistical framework necessary for the ESCB to perform its tasks in Stage Three.

In December 1995 the European Council agreed to name the European currency unit to be introduced at the start of Stage Three, the “euro”, and confirmed that Stage Three of EMU would start on 1 January 1999. A chronological sequence of events was pre-announced for the changeover to the euro. This scenario was mainly based on detailed proposals elaborated by the EMI. At the same time, the EMI was given the task of carrying out preparatory work on the future monetary and exchange rate relationships between the euro area and other EU countries. In December 1996 the EMI presented its report to the European Council, which formed the basis of a Resolution of the European Council on the principles and fundamental elements of the new exchange rate mechanism (ERM II), which was adopted in June 1997.

In December 1996 the EMI also presented to the European Council, and subsequently to the public, the selected design series for the euro banknotes to be put into circulation on 1 January 2002.

In order to complement and to specify the Treaty provisions on EMU, the European Council adopted the Stability and Growth Pact in June 1997 – two Regulations form part of the Stability and Growth Pact, which aims to ensure budgetary discipline in respect of EMU. The Pact was supplemented and the respective commitments enhanced by a Declaration of the Council in May 1998.

On 2 May 1998 the Council of the European Union – in the composition of Heads of State or Government – unanimously decided that 11 Member States (Belgium, Germany, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland) had fulfilled the conditions necessary for the adoption of the single currency on 1 January 1999. These

countries were therefore to participate in the third stage of EMU. The Heads of State or Government also reached a political understanding on the persons to be recommended for appointment as members of the Executive Board of the ECB.

At the same time, the ministers of finance of the Member States adopting the single currency agreed together with the governors of the national central banks of these Member States, the European Commission and the EMI that the current ERM bilateral central rates of the currencies of the participating Member States would be used in determining the irrevocable conversion rates for the euro.

On 25 May 1998 the governments of the 11 participating Member States appointed the President, the Vice-President and the four other members of the Executive Board of the ECB. Their appointment took effect from 1 June 1998 and marked the establishment of the ECB. The ECB and the national central banks of the participating Member States constitute the Eurosystem, which formulates and defines the single monetary policy in Stage Three of EMU.

With the establishment of the ECB on 1 June 1998, the EMI had completed its tasks. In accordance with Article 123 (ex Article 109I) of the Treaty establishing the European Community, the EMI went into liquidation on the establishment of the ECB. All the preparatory work entrusted to the EMI was concluded in good time and the rest of 1998 was devoted by the ECB to the final testing of systems and procedures.

### **Stage Three of EMU, irrevocable fixing of exchange rates**

On 1 January 1999 the third and final stage of EMU commenced with the irrevocable fixing of the exchange rates of the currencies of the 11 Member States initially participating in Monetary Union and with the conduct of a single monetary policy under the responsibility of the ECB.

The number of participating Member States increased to 12 on 1 January 2001, when Greece entered the third stage of EMU. Since that day the Bank of Greece has been part of the Eurosystem. Greece's participation followed a decision taken on 19 June 2000 by the EU Council – meeting in the composition of the Heads of State or Government – that Greece fulfilled the convergence criteria.





## GLOSSARY

**Accountability:** the legal and political obligation of an independent institution to properly explain and justify its decisions to the citizens and their elected representatives, thereby making it responsible for fulfilling its objectives. The **European Central Bank (ECB)** is accountable to the European citizens and, more formally, to the **European Parliament**.

**Bond market:** the market in which longer-term **debt securities** are issued and traded.

**Broad Economic Policy Guidelines (BEPGs):** adopted by the **EU Council** to provide the framework for defining the economic policy objectives and orientations of the **Member States** and the European Community.

**Central bank independence:** legal provision which guarantees that a central bank can carry out its tasks and duties without political interference. Article 108 of the **Treaty** establishes the principle of central bank independence for the euro area.

**Collateral:** assets pledged as a guarantee for the repayment of loans (e.g. by **credit institutions** with central banks), as well as assets sold (e.g. to central banks by credit institutions) as part of **repurchase agreements**.

**Consolidated MFI balance sheet:** this is obtained by netting out inter-MFI positions (e.g. inter-MFI loans and deposits) on the aggregated MFI balance sheet. It provides statistical information on the MFI sector's assets and liabilities vis-à-vis residents of the **euro area** not belonging to this sector (i.e. **general government** and other euro area residents) and vis-à-vis non-euro area residents. This consolidated balance sheet is the main statistical source for the calculation of **monetary aggregates** and it provides the basis for the regular analysis of the counterparts of **M3**.

**Convergence criteria:** the criteria established in Article 121 (1) of the **Treaty** (and developed further in Protocol No 21) as a basis for the assessment of whether a country may adopt the euro. They relate to performance with regard to **price stability**, the government financial position, exchange rates and long-term interest rates. They also cover the compatibility of national legislation, including the statutes of national central banks, with both the Treaty and the Statute of the **European System of Central Banks** and of the **European Central Bank**.

**Council:** see **EU Council**.

**Counterparty:** the opposite party in a financial transaction (e.g. any party transacting with a central bank).

**Credit institution:** refers to an institution covered by the definition contained in Article 1 (1) of Directive 2000/12/EC of the **European Parliament** and of

the Council of 20 March 2000 relating to the taking up and pursuit of the business of credit institutions, as amended by Directive 2000/28/EC of the European Parliament and of the Council of 18 September 2000. Thus, a credit institution is: (i) an undertaking whose business is to receive deposits or other repayable funds from the public and to grant credits for its own account; or (ii) an undertaking or any other legal person, other than those under (i), which issues means of payment in the form of “electronic money” (electronic money means monetary value, as represented by a claim on the issuer, which is: (a) stored on an electronic device; (b) issued on receipt of funds of an amount not lower in value than the monetary value issued; and (c) accepted as a means of payment by undertakings other than the issuer).

**Credit to euro area residents:** a broad measure of the financing of non-monetary financial institution (MFI) euro area residents (including **general government** and the private sector) provided by the MFI sector. It is defined as including MFI **loans to euro area residents** and MFI holdings of securities issued by **euro area** residents. The latter include shares, other equity and **debt securities**. As securities can be seen as an alternative source of funds to loans, and as some loans can be securitised, this definition provides more accurate information on the total amount of financing provided by the MFI sector to the economy than a narrow definition comprising loans only.

**Currency in circulation:** comprises banknotes and coins in circulation that are commonly used to make payments. As from the start of 2002 currency in circulation in the **euro area** has included banknotes issued by the **Eurosystem** and by other **monetary financial institutions (MFIs)** as well as coins issued by the euro area central governments denominated in both **euro** and the legacy currencies, even though the euro has been the sole legal tender in all euro area countries since 1 March 2002. Banknotes of legacy currencies ceased to be included in banknotes in circulation as from 1 January 2003, both for **Eurosystem** financial reporting and for statistical purposes. The same has been applied consistently for coins of legacy currencies. Currency in circulation as included in **M3** is a net concept, meaning that it refers only to those banknotes and coins in circulation that are held outside the MFI sector (i.e. currency held by MFIs or “vault cash” has been subtracted). Furthermore, it includes neither central banks’ stocks of own banknotes (as they have not been put into circulation), nor commemorative coins (that are not commonly used to make payments).

**Debt ratio:** the subject of one of the fiscal criteria used to define the existence of an excessive deficit, as laid down in Article 104 (2) of the **Treaty**. It is defined as the ratio of government debt to gross domestic product at current market prices, while government debt is defined in Protocol No 20 (on the **excessive deficit procedure**) as the total gross debt at nominal value outstanding at the end of the year and consolidated between and within the sectors of **general government**.

**Debt securities:** a promise on the part of the issuer (borrower) to make one or more payment(s) to the holder (lender) at a specified future date or dates. The

holder's income from the debt securities therefore consists of any coupon payments received together with the difference between the purchase price of the bond and its market value upon sale or maturity. Debt securities are negotiable and can be traded on secondary markets, but they do not grant the holder any ownership rights in the issuing unit. Money market paper and, in principle, private placements are included in the debt securities statistics of the **European Central Bank (ECB)**.

**Deficit ratio:** the subject of one of the fiscal criteria used to define the existence of an excessive deficit, as laid down in Article 104 (2) of the **Treaty**. It is defined as the ratio of the planned or actual government deficit to gross domestic product at current market prices. The government deficit is defined in Protocol No 20 (on the **excessive deficit procedure**) as net borrowing of the **general government**.

**Deflation:** a decline in the general price level, e.g. in the consumer price index.

**Degree of openness:** a measure of the extent to which an economy depends on trade with other countries or regions, e.g. the ratio of the sum of total imports and exports to GDP.

**Deposit facility:** a **standing facility** of the **Eurosystem** which **counterparties** may use to make **overnight deposits** at a national central bank and which are remunerated at a pre-specified interest rate (see **key ECB interest rates**).

**Deposits redeemable at notice:** savings deposits for which the holder must respect a fixed period of notice before withdrawing the funds. In some cases there is the possibility of withdrawing on demand a certain fixed amount in a specified period or of early withdrawal subject to the payment of a penalty. Deposits redeemable at a period of notice of up to three months are included in **M2** (and hence in **M3**), while those with a longer period of notice are part of the (non-monetary) longer-term financial liabilities of the MFI sector.

**Deposits with an agreed maturity:** mainly time deposits with a given maturity that, depending on national practices, may be subject to the payment of a penalty in the event of early withdrawal. Some non-marketable debt instruments, such as non-transferable (retail) certificates of deposit, are also included. Deposits with an agreed maturity of up to two years are included in **M2** (and hence in **M3**), while those with an agreed maturity of over two years are included in the (non-monetary) longer-term financial liabilities of the MFI sector.

**Derivatives market:** the issuing and trading market for financial contracts, the value of which is related to underlying securities prices, interest rates, foreign exchange rates, market indices or commodity prices. The basic classes of derivatives are **futures contracts**, **options**, **swaps** and **forward rate agreements**.

**ECOFIN Council:** see **EU Council**.

**Economic and Financial Committee (EFC):** a consultative Community body set up at the start of **Stage Three** of **Economic and Monetary Union (EMU)**. The **Member States**, the **European Commission** and the **European Central Bank (ECB)** each appoint no more than two members of the Committee. Each Member State selects one member from among the senior officials of its national administration, and the second member from among the senior officials of its national central bank. However, the national central bank members only participate in EFC meetings when issues of their institution's particular expertise or competence are being discussed. Article 114 (2) of the **Treaty** contains a list of the tasks of the Economic and Financial Committee.

**Economic and Monetary Union (EMU):** the **Treaty** describes the process of achieving economic and monetary union in the European Union in three stages. Stage One of EMU started in July 1990 and ended on 31 December 1993. It was mainly characterised by the dismantling of all internal barriers to the free movement of capital within the European Union. Stage Two of EMU began on 1 January 1994. It provided for, inter alia, the establishment of the **European Monetary Institute (EMI)**, the prohibition of financing of the public sector by the central banks, the prohibition of privileged access to financial institutions by the public sector and the avoidance of excessive government deficits. Stage Three started on 1 January 1999 with the transfer of monetary competence to the **European Central Bank (ECB)** and the introduction of the **euro**.

**ECU (European Currency Unit):** prior to **Stage Three** of EMU, the ECU was a basket currency made up of the sum of fixed amounts of 12 out of the 15 currencies of the EU **Member States**. The value of the ECU was calculated as a weighted average of the value of its component currencies. The ECU was replaced by the **euro** on a one-for-one basis on 1 January 1999.

**Effective (nominal/real) exchange rates (EERs):** nominal EERs consist of a (geometric) weighted average of various bilateral exchange rates. Real EERs are nominal EERs deflated by a weighted average of foreign, relative to domestic, prices or costs. They are thus measures of price and cost competitiveness. The **European Central Bank (ECB)** calculates nominal EER indices for the **euro** against the currencies of a broad group of trading partners of the **euro area**. Since January 2001 the narrow group has consisted of 12 industrial and newly industrialised partner currencies, while the broad group has been made up of 38 trading partners. The real EER indices for the **euro** are calculated using alternative measures of prices and costs.

**EONIA (euro overnight index average):** a measure of the effective interest rate prevailing in the **euro** interbank overnight market. It is calculated as a weighted average of the interest rates on unsecured overnight lending transactions denominated in euro, as reported by a panel of contributing banks.

**Equity market:** the market in which equities are issued and traded. Equities are claims to a share in the ownership of a business. A major difference between equity and debt is that the former does not have to be repaid by the issuer.

**ERM (exchange rate mechanism):** the exchange rate and intervention mechanism of the **European Monetary System** defined the exchange rate of participating currencies in terms of central rates against the **ECU**. These central rates were used to establish a table of bilateral central rates between participating currencies. Exchange rates were allowed to fluctuate within a band around the bilateral central rates. The central rates could be adjusted, subject to mutual agreement between all countries participating in the ERM. The ERM ceased to exist with the start of **Stage Three** of **Economic and Monetary Union (EMU)** when **ERM II** was established.

**ERM II (exchange rate mechanism II):** the exchange rate arrangement which provides the framework for exchange rate policy cooperation between the **euro area** and **EU Member States** not participating in the euro area from the start of **Stage Three** of **Economic and Monetary Union (EMU)**. Membership of the mechanism is voluntary. Nevertheless, Member States with a derogation are expected to join the mechanism. Foreign exchange intervention and financing at the margins of the standard or narrower fluctuation bands are, in principle, automatic and unlimited, with very short-term financing available. The **European Central Bank (ECB)** and the participating non-euro area national central banks could, however, suspend automatic intervention if this were to conflict with their primary objective of maintaining **price stability**.

**EU Council:** an institution of the European Community. It is made up of representatives of the governments of the **Member States**, normally the ministers responsible for the matters under consideration (therefore often referred to as the Council of Ministers). The EU Council meeting in the composition of the ministers of finance and economy is often referred to as the **ECOFIN** Council. In addition, the EU Council may meet in the composition of the Heads of State or Government (see also **European Council**).

**EU enlargement:** In 2003 a total of 13 countries in central and eastern Europe and the Mediterranean were recognised by the **European Council** as candidates for accession to the European Union (EU). The following ten countries signed the Accession Treaty with a view to joining the EU on 1 May 2004: the Czech Republic, Estonia, Cyprus, Latvia, Lithuania, Hungary, Malta, Poland, Slovenia and Slovakia. Two other countries, Bulgaria and Romania, entered into accession negotiations in 2003 and have been given the prospect of entry into the EU in 2007. Turkey is the other official candidate for accession.

**EU Member State:** see **Member State**.

**EURIBOR (euro interbank offered rate):** the rate at which a prime bank is willing to lend funds in **euro** to another prime bank. The EURIBOR is calculated daily for interbank deposits with a maturity of one week and one to 12 months as the average of the daily offer rates of a representative panel of prime banks, rounded to three decimal places.

**Euro:** the name of the European single currency adopted by the **European Council** at its meeting in Madrid on 15 and 16 December 1995.

**Euro area:** the area encompassing those **Member States** in which the **euro** has been adopted as the single currency in accordance with the **Treaty** and in which a single monetary policy is conducted under the responsibility of the **Governing Council** of the **European Central Bank (ECB)**. In 2003 the euro area comprised Belgium, Germany, Greece, Spain, France, Ireland, Italy, Luxembourg, the Netherlands, Austria, Portugal and Finland.

**European Central Bank (ECB):** the ECB lies at the centre of the **European System of Central Banks (ESCB)** and the **Eurosystem** and has legal personality under Community law. It ensures that the tasks conferred upon the Eurosystem and the ESCB are implemented either by its own activities or those of the national central banks pursuant to the Statute of the European System of Central Banks and of the European Central Bank.

**European Commission:** the institution of the European Community that ensures the application of the provisions of the **Treaty**. The Commission develops Community policies, proposes Community legislation and exercises powers in specific areas. In the area of economic policy, the Commission recommends broad guidelines for economic policies in the Community and reports to the **EU Council** on economic developments and policies. It monitors public finances within the framework of multilateral surveillance and submits reports to the Council.

**European Council:** provides the European Union with the necessary impetus for its development and defines the general political guidelines thereof. It brings together the Heads of State or Government of the **Member States** and the President of the **European Commission** (see also **EU Council**).

**European Monetary Institute (EMI):** a temporary institution established at the start of Stage Two of **Economic and Monetary Union (EMU)** on 1 January 1994. The two main tasks of the EMI were to strengthen central bank cooperation and monetary policy coordination and to make the preparations required for the establishment of the **European System of Central Banks (ESCB)**, for the conduct of the single monetary policy and for the creation of a single currency in **Stage Three**. It went into liquidation following the establishment of the **European Central Bank (ECB)** on 1 June 1998.

**European Monetary System (EMS):** an exchange rate regime established in 1979 in accordance with the Resolution of the **European Council** of 5 December 1978. Its operating procedures were laid down by the Agreement of 13 March 1979 between the central banks of the Member States of the European Economic Community (EEC). The objective was to create closer monetary policy cooperation between Community countries, leading to a zone of monetary stability in Europe. The main components of the EMS were the **ECU**, the exchange rate and intervention mechanism (**ERM**) and various credit

mechanisms. It ceased to exist at the start of **Stage Three of Economic and Monetary Union (EMU)**, when **ERM II (exchange rate mechanism II)** was established.

**European Parliament:** consists of 626 representatives of the citizens of the **Member States**. It is a part of the legislative process, although with different prerogatives according to the procedures through which EU law is to be enacted. In the framework of **Economic and Monetary Union (EMU)**, the Parliament has mainly consultative powers. The **Treaty** establishes certain procedures for the democratic accountability of the **European Central Bank (ECB)** to the Parliament (presentation of the annual report, general debate on the monetary policy, hearings before the competent parliamentary committees).

**European System of Accounts 1995 (ESA 95):** a system of uniform statistical definitions and classifications aimed at achieving a harmonised quantitative description of the economies of the **Member States**. The ESA 95 is the Community's version of the world System of National Accounts (SNA 93). The ESA 95 is a new version of the European system, the implementation of which began in the course of 1999 in accordance with Council Regulation (EC) No 2223/96.

**European System of Central Banks (ESCB):** composed of the **European Central Bank (ECB)** and the national central banks of all EU **Member States**, i.e. it includes, in addition to the members of the **Eurosystem**, the national central banks of the Member States that have not yet adopted the **euro**.

**Eurostat:** the Statistical Office of the European Communities. Eurostat is part of the **European Commission** and is responsible for the production of Community statistics.

**Eurosystem:** the central banking system of the **euro area**. It comprises the **European Central Bank (ECB)** and the national central banks of the **Member States** that have adopted the **euro** in **Stage Three of Economic and Monetary Union (EMU)** (see also **euro area**). In 2003 there were 12 national central banks in the Eurosystem.

**Eurosystem staff projections:** the results of exercises conducted by **Eurosystem** staff to project possible future macroeconomic developments in the **euro area** as part of the economic analysis.

**Excessive deficit procedure:** the provision set out in Article 104 of the **Treaty** and specified in Protocol No 20 on the excessive deficit procedure requires EU **Member States** to maintain budgetary discipline, defines the criteria for a budgetary position to be considered an excessive deficit and regulates steps to be taken following the observation that the requirements for the budgetary balance or government debt have not been fulfilled. This is supplemented by an **EU Council** Regulation on speeding up and clarifying the implementation of the excessive deficit procedure, which is one element of the **Stability and Growth Pact**.



**Exchange rate targeting:** a monetary policy strategy aiming for a given (usually a stable or even fixed) exchange rate against another currency or group of currencies.

**Executive Board:** one of the decision-making bodies of the **European Central Bank (ECB)**. It comprises the President and the Vice-President of the ECB and four other members appointed by common accord by the Heads of State or Government of the **Member States** that have adopted the **euro**.

**Financial markets:** markets in which those who have a surplus of funds lend to those who have a shortage.

**Fine-tuning operation:** a non-regular **open market operation** executed by the **Eurosystem** mainly to deal with unexpected liquidity fluctuations in the market.

**Fixed rate tender:** a tender procedure where the interest rate is specified in advance by the central bank and participating **counterparties** bid the amount of money they want to transact at the fixed interest rate.

**Foreign exchange swap:** simultaneous spot and forward transactions exchanging one currency against another. The **Eurosystem** can execute open market monetary policy operations in the form of foreign exchange swaps, where the national central banks (or the **European Central Bank (ECB)**) buy or sell **euro** spot against a foreign currency and at the same time sell or buy them back in a forward transaction.

**Forward rate agreement (FRA):** an agreement whereby one party undertakes to pay another party a certain interest rate on a certain principal amount for a certain period of time beginning at some point in the future.

**Futures contract:** a contract to buy or sell securities or a commodity at a predetermined price on a specified future date.

**General Council:** one of the decision-making bodies of the **European Central Bank (ECB)**. It comprises the President and the Vice-President of the ECB and the governors of all EU national central banks.

**General government:** as defined in the **European System of Accounts 1995 (ESA 95)**, consists of central, state and local government and social security funds.

**Governing Council:** the supreme decision-making body of the **European Central Bank (ECB)**. It comprises all the members of the **Executive Board** of the ECB and the governors of the national central banks of the countries that have adopted the **euro**.

**Harmonised Index of Consumer Prices (HICP):** index of consumer prices whose statistical methodology has been harmonised across countries.

**Households:** one of the institutional sectors in the **European System of Accounts 1995 (ESA 95)**. The household sector covers individuals or groups of individuals as consumers, but possibly also as entrepreneurs (i.e. sole proprietorships and partnerships). Non-profit institutions serving households are a separate institutional sector according to the ESA 95, although they are often reported together with households.

**Inflation:** an increase in the general price level, e.g. in the consumer price index.

**Inflation risk premium:** compensation of investors for the risks associated with holding assets (denominated in nominal terms) over the longer term.

**Inflation targeting:** a monetary policy strategy aimed at maintaining **price stability** by focusing on deviations in published inflation forecasts from an announced inflation target.

**Key ECB interest rates:** the interest rates that reflect the stance of the monetary policy of the **European Central Bank (ECB)** and that are set by the **Governing Council**. The key ECB interest rates are the interest rate on the **main refinancing operations** (the fixed rate in **fixed rate tenders** and the minimum bid rate in **variable rate tenders**), the interest rate on the **marginal lending facility** and the interest rate on the **deposit facility**.

**Labour force participation rate:** the labour force as a proportion of the total working age population. The working age population is normally defined as the population aged between 15 and 64 years of age. The labour force comprises both employed and unemployed persons.

**Leading indicators:** economic variables which anticipate or contain useful information for predicting future developments in other variables.

**Loans to euro area residents:** funds lent by **monetary financial institutions (MFIs)** to borrowers and not evidenced by negotiable documents or represented by one single document (if it has become negotiable). This description includes loans granted to households, non-financial corporations and government. Loans to households can take the form of consumer credit (loans granted for personal use in the consumption of goods and services), lending for house purchases (credit extended for the purpose of investing in housing, including building and home improvements) and other lending (loans granted for purposes such as debt consolidation, education, etc.) (see also **credit to euro area residents**).

**Longer-term refinancing operation:** a regular **open market operation** executed by the **Eurosystem** in the form of a **reverse transaction**. Longer-term refinancing operations are carried out through monthly **standard tenders** and normally have a maturity of three months.

**M1, M2, M3:** see **Monetary aggregates**.

**Maastricht Treaty:** see **Treaty**.

**Main refinancing operation:** a regular **open market operation** executed by the **Eurosystem** in the form of a **reverse transaction**. Main refinancing operations are conducted through weekly **standard tenders**. In 2003 the Governing Council decided that as of March 2004 the maturity of these operations would be reduced from two weeks to one.

**Maintenance period:** the period over which **credit institutions'** compliance with **reserve requirements** is calculated. The maintenance period for **Eurosystem** minimum reserves is one month. In 2003 the Governing Council decided that as of March 2004 the maintenance period would no longer start on the 24th calendar day of one month and end on the 23rd calendar day of the following month, but would instead start on the settlement day of the first main refinancing operation following the Governing Council meeting at which the monthly assessment of the monetary policy stance is pre-scheduled and would end on the day preceding the similar settlement day in the following month.

**Marginal lending facility:** a **standing facility** of the **Eurosystem** which **counterparties** may use to receive overnight credit from a national central bank at a pre-specified interest rate against eligible assets (see **key ECB interest rates**).

**Member State:** a country that is a member of the European Union.

**Minimum bid rate:** the lower limit to the interest rates at which **counterparties** may submit bids in the **variable rate tenders** (see **key ECB interest rates**).

**Monetary aggregates:** **currency in circulation** plus outstanding amounts of certain liabilities of **monetary financial institutions (MFIs)** that have a relatively high degree of liquidity and are held by non-MFI euro area residents outside the central government sector. The narrow monetary aggregate **M1** has been defined as currency in circulation plus **overnight deposits**. The “intermediate” monetary aggregate **M2** comprises M1 plus **deposits with an agreed maturity** of up to and including two years and **deposits redeemable at notice** of up to and including three months. The broad monetary aggregate **M3** comprises M2 plus **repurchase agreements, money market fund shares and units** as well as **debt securities** with a maturity of up to and including two years. The **Governing Council** has announced a reference value for the growth of M3 (see also **reference value for monetary growth**).

**Monetary base:** consists of currency (banknotes and coins) in circulation, the reserves held by counterparties with the **Eurosystem** and recourse to the Eurosystem's deposit facility. These items are liabilities on the Eurosystem's balance sheet. Reserves can be broken down further into required and excess reserves. In the Eurosystem's minimum reserve system counterparties are obliged to hold required reserves with the NCBs. In addition to these required

reserves, credit institutions usually hold only a small amount of voluntary excess reserves with the Eurosystem.

**Monetary financial institutions (MFIs):** financial institutions that form the money-issuing sector of the **euro area**. These include the **Eurosystem**, resident **credit institutions** (as defined in Community law) and all other resident financial institutions whose business is to receive deposits and/or close substitutes for deposits from entities other than MFIs and, for their own account (at least in economic terms), to grant credit and/or invest in securities. The latter group consists predominantly of **money market funds**.

**Monetary policy strategy:** the general approach to the conduct of monetary policy. The monetary policy strategy of the ECB comprises a quantitative definition of the primary objective of price stability and an analytical framework based on two pillars – economic analysis and monetary analysis – which forms the basis of the **Governing Council**'s overall assessment of the risks to **price stability** and its monetary policy decisions. It also provides the framework for explaining monetary policy decisions to the public.

**Monetary policy transmission mechanism:** the process through which monetary policy decisions affect the economy in general and the price level in particular.

**Monetary targeting:** a monetary policy strategy aimed at maintaining **price stability** by focusing on the deviations of money growth from a pre-announced target.

**Money demand:** a key economic relationship that represents the demand for money balances by non-**monetary financial institutions (MFIs)**. The demand for money is often expressed as a function of prices and economic activity, which serves as a proxy for the level of transactions in the economy, and certain interest rate variables, which measure the **opportunity costs** of holding money.

**Money market:** the market in which short-term funds are raised, invested and traded using instruments which generally have an original maturity of up to one year.

**Money market fund:** a collective investment undertaking that primarily invests in money market instruments and/or other transferable debt instruments with a residual maturity of up to one year, and/or that pursues a rate of return that approaches the interest rates on money market instruments.

**Neutrality of money:** a basic economic principle stating that in the long run changes in the money supply only lead to changes in nominal variables but not in real variables. Changes in the money supply will therefore have no long-term effect on variables such as real output, unemployment or real interest rates.

**Nominal effective exchange rates:** see **effective (nominal/real) exchange rates**.

**Non-financial corporations:** one of the institutional sectors in the **European System of Accounts 1995 (ESA 95)**. This sector consists of institutional units whose distributive and financial transactions are distinct from those of their owners. Non-financial corporations encompass all bodies recognised as independent legal entities which are market producers and whose principal activity is the production of goods and non-financial services.

**Open market operation:** an operation executed on the initiative of the central bank in the financial markets. With regard to their aims, regularity and procedures, **Eurosystem** open market operations can be divided into four categories: **main refinancing operations**, **longer-term refinancing operations**, **fine-tuning operations** and **structural operations**. They involve one of the following transactions: (i) buying or selling assets outright (spot or forward); (ii) buying or selling assets under a **repurchase agreement**; (iii) lending or borrowing against underlying assets as **collateral**; (iv) issuing central bank debt certificates; (v) accepting fixed-term deposits; or (vi) conducting **foreign exchange swaps** between domestic and foreign currencies.

**Opportunity cost:** measure of the costs of holding an asset, typically measured as the spread between the return on an alternative asset and its own return.

**Option:** a financial instrument that gives the owner the right, but not the obligation, to buy or sell specific assets (e.g. a bond or a stock) at a predetermined price (the strike or exercise price) at or up to a certain future date (the exercise or maturity date). A call option gives the holder the right to purchase the underlying assets at an agreed exercise price, whereas a put option gives the holder the right to sell them at an agreed price.

**Output gap:** the difference between the actual and potential levels of output of an economy, expressed as a percentage of potential output. Potential output is the level of output that can be achieved when the factors of production are utilised at non-inflationary levels.

**Outright transaction:** a transaction whereby assets are bought or sold outright in the market (spot or forward).

**Overnight deposits:** deposits with next-day maturity. This instrument category comprises mainly those sight/demand deposits that are fully transferable (by cheque or similar instrument). It also includes non-transferable deposits that are convertible on demand or by close of business the following day. Overnight deposits are included in **M1** (and hence in **M2** and **M3**).

**Pension fund:** provision or similar fund set aside by non-financial corporations to pay for their employees' pensions.

**Price stability:** the maintenance of price stability is the primary objective of the **Eurosystem**. In October 1998 the **Governing Council** published a quantitative definition of price stability in order to give clear guidance to expectations of future price developments and to be accountable. The Governing Council has defined price stability as a year-on-year increase in the **Harmonised Index of Consumer Prices (HICP)** for the **euro area** of below 2%. In May 2003 the Governing Council clarified that, in its pursuit of price stability, it aims to maintain inflation rates below, but close to, 2% over the medium term.

**Projections:** see **Eurosystem staff projections**.

**Real effective exchange rates:** see **effective exchange rates (nominal/real)**.

**Reference value for monetary growth:** in order to assess monetary developments, the **Governing Council** has announced a reference value for the broad monetary aggregate **M3**. This reference value refers to the rate of M3 growth that is deemed to be compatible with price stability over the medium term. The reference value is derived in a manner that is consistent with and serves the achievement of the **Governing Council's** definition of **price stability** on the basis of medium-term assumptions regarding trend real GDP growth and the trend in the velocity of circulation of M3. Substantial or prolonged deviations of M3 growth from the reference value would, under normal circumstances, signal risks to price stability over the medium term. However, monetary policy does not react mechanically to deviations of M3 growth from the reference value.

**Reference value for the fiscal position:** **Treaty** Protocol No 20 on the **excessive deficit procedure** sets explicit reference values for the **general government deficit ratio** (3% of GDP) and the **debt ratio** (60% of GDP) (see also **Stability and Growth Pact**).

**Repurchase agreement:** an arrangement to sell an asset and to repurchase it at a specified price on a predetermined future date or on demand. Such an agreement is similar to collateralised borrowing, except that in this case ownership of the securities is not retained by the seller. Repurchase transactions are included in **M3** in cases where the seller is a **monetary financial institution (MFI)** and the **counterparty** is a non-MFI resident in the **euro area**.

**Repurchase operation (repo):** a liquidity-providing **reverse transaction** based on a **repurchase agreement**.

**Reserve base:** the sum of the balance sheet items (in particular liabilities) that constitute the basis for calculating the **reserve requirement** of a **credit institution**.

**Reserve ratio:** a ratio defined by the central bank for each category of balance sheet items included in the **reserve base**. The ratios are used to calculate **reserve requirements**.

**Reserve requirement:** the minimum amount of reserves a **credit institution** is required to hold with a central bank. In the minimum reserve framework of the **Eurosystem**, the reserve requirement of a **credit institution** is calculated by multiplying the **reserve ratio** for each category of items in the **reserve base** by the amount of those items on the institution's balance sheet. In addition, institutions are allowed to deduct a lump-sum allowance from their reserve requirement.

**Reverse transaction:** an operation whereby the central bank buys or sells assets under a **repurchase agreement** or conducts credit operations against **collateral**.

**Stability and Growth Pact:** consists of two **EU Council** Regulations, on “the strengthening of the surveillance of budgetary positions and the surveillance and coordination of economic policies” and on “speeding up and clarifying the implementation of the **excessive deficit procedure**”, and of a **European Council** Resolution on the Stability and Growth Pact adopted at the Amsterdam summit on 17 June 1997. More specifically, budgetary positions close to balance or in surplus are required as the medium-term objective for **Member States** since this would allow them to deal with normal cyclical fluctuations while keeping their government deficit below the **reference value** of 3% of GDP. In accordance with the Stability and Growth Pact, countries participating in EMU will submit annual **stability programmes**, while non-participating countries will continue to provide annual convergence programmes.

**Stability programmes:** medium-term government plans and assumptions provided by **euro area** countries regarding the development of key economic variables with a view to the achievement of the medium-term objective of a budgetary position close to balance or in surplus as referred to in the **Stability and Growth Pact**. These programmes present measures for the consolidation of fiscal balances as well as the underlying economic scenarios. Stability programmes must be updated annually. They are examined by the **European Commission** and the **Economic and Financial Committee (EFC)**. Their reports serve as the basis for an assessment by the **ECOFIN Council**, focusing in particular on whether the medium-term budgetary objective in the programme is in line with a budgetary position close to balance or in surplus, providing for an adequate safety margin to ensure that an excessive deficit is avoided. Countries that have not yet adopted the **euro** must submit annual convergence programmes, in accordance with the **Stability and Growth Pact**.

**Stage One, Stage Two, Stage Three:** see **Economic and Monetary Union (EMU)**.

**Standard tender:** a tender procedure used by the **Eurosystem** in its regular **open market operations**. Standard tenders are carried out within 24 hours. All **counterparties** fulfilling the general eligibility criteria are entitled to submit bids.

**Standing facility:** a central bank facility available to **counterparties** on their own initiative. The **Eurosystem** offers two overnight standing facilities: the **marginal lending facility** and the **deposit facility**.

**Stock market:** see **equity market**.

**Structural operation:** an **open market operation** executed by the **Eurosystem** mainly in order to adjust the structural liquidity position of the financial sector vis-à-vis the **Eurosystem**.

**Swap:** an agreement to exchange future cash flows according to a prearranged formula (see **foreign exchange swap**).

**TARGET (Trans-European Automated Real-time Gross settlement Express Transfer system):** a payment system composed of one real-time gross settlement (RTGS) system in each of the EU **Member States** plus the ECB payment mechanism (EPM). The national RTGS systems and the EPM are interconnected by common procedures (interlinking) to allow cross-border transfers throughout the European Union to move from one system to another.

**Tier one asset:** a marketable asset fulfilling certain uniform **euro area**-wide eligibility criteria specified by the **European Central Bank (ECB)**.

**Tier two asset:** a marketable or non-marketable asset fulfilling specific eligibility criteria specified by a national central bank, subject to **European Central Bank (ECB)** approval.

**Transmission mechanism:** see **Monetary policy transmission mechanism**.

**Treaty:** refers to the Treaty establishing the European Community. The Treaty was signed in Rome on 25 March 1957 and entered into force on 1 January 1958. It established the European Economic Community (EEC), which is now the European Community (EC), and is often referred to as the “Treaty of Rome”. The Treaty on European Union (which is often referred to as the “Maastricht Treaty”) was signed on 7 February 1992 and entered into force on 1 November 1993. The Treaty on European Union amended the Treaty establishing the European Community and established the European Union. The “Treaty of Amsterdam”, which was signed in Amsterdam on 2 October 1997 and entered into force on 1 May 1999, amended both the Treaty establishing the European Community and the Treaty on European Union. Equally, the “Treaty of Nice”, which concluded the 2000 Intergovernmental Conference and was signed on 26 February 2001 and entered into force on 1 February 2003, amended both the Treaty establishing the European Community and the Treaty on European Union.

**Variable rate tender:** a tender procedure whereby the **counterparties** bid both the amount of money they want to transact with the central bank and the interest rate at which they want to enter into the transaction.





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## INDEX

- Accountability 13, 51, 66-67, 105
- Bilateral central rate 103
- Bond market 33, 105
- Broad Economic Policy Guidelines (BEPGs) 24, 105
- Central bank independence 12, 66, 105
- Collateral 46, 74-75, 83, 105
- Consolidated MFI balance sheet 35-39, 105
- Convergence criteria 9, 103, 105
- Council (see EU Council)
- Counterparty 35, 74-75, 83, 105
- Credibility 42, 46-49, 67, 90, 99
- Credit 35-36, 45, 59, 63, 65, 83, 106
- Credit institution 35-39, 71-90, 105
- Currency in circulation 37-38, 106
- Debt ratio 23, 106
- Debt securities 32-39, 77, 105
- Debt securities market 32-33
- Deficit ratio 23, 107
- Deflation 42-43, 51-54, 107
- Degree of openness 107
- Deposit facility 71, 74, 84-85, 97, 99, 107
- Deposits redeemable at notice 37, 107
- Deposits with an agreed maturity 37-38, 77, 107
- Derivatives market 30, 107
- Downward nominal rigidities 54
- ECOFIN 13, 107
- Economic and Financial Committee (EFC) 108
- Economic and Monetary Union (EMU) 11, 101-103, 108
- Economic shocks 45, 49, 54, 91
- Effective exchange rates 93, 108
- Equity market 33-34, 108
- ERM 103, 109
- ERM II 102, 109
- EU Council 13, 23-24, 67, 103, 109
- EU enlargement 11, 109
- Euro 9, 110
- Euro area 9, 110
- Euro interbank offered rate (EURIBOR) 31, 109
- Euro overnight index average (EONIA) 31, 76, 79, 108
- European Central Bank (ECB) 9-13, 102-103, 110
- European Commission 13, 23-24, 101, 103, 110
- European Currency Unit (ECU) 102, 108
- European Economic Community (EEC) 101
- European Council 9, 13-14, 24, 102-103
- European Monetary Institute (EMI) 52, 102-103, 110
- European Monetary System (EMS) 110
- European Parliament 13, 67-69, 111
- European System of Accounts 1995 (ESA 95) 111
- European System of Central Banks (ESCB) 9, 102, 111
- Eurostat 52-53, 59, 111
- Eurosystem 9-13, 111
- Eurosystem staff projections 60-62, 111
- Excessive deficit procedure 23, 111
- Exchange rate targeting 57, 112
- Executive Board of the ECB 11, 103, 112
- Financial markets 26-27, 30-35, 59-60, 92, 112
- Fine-tuning operation 73-74, 82-84, 112
- Fixed rate tender 80-82, 90, 112
- Foreign exchange swap 83-84, 112
- Forward rate agreement (FRA) 112
- Futures contract 104, 112
- General Council of the ECB 11-12, 112
- General government 21-24, 112
- Governing Council of the ECB 11, 44, 112
- Harmonised Index of Consumer Prices (HICP) 51-53, 112
- Households 22, 45-46, 113
- Inflation 42, 51-55, 113

Inflation expectations 46-51, 95-96  
 Inflation risk premium 42, 113  
 Inflation targeting 56, 68, 113  
 Investment 45-46  
 Key ECB interest rates 76, 91-99, 113  
 Labour force participation rate 20, 113  
 Leading indicators 64, 113  
 Loans 26-29, 35-39, 93-97, 113  
 Longer-term refinancing operation 73, 82, 113  
 M1 37, 65, 93, 97, 113  
 M2 37, 113  
 M3 37-38, 62-65, 94, 97, 113  
 Maastricht Treaty (see Treaty)  
 Main refinancing operation 73, 80-82, 114  
 Maintenance period 78, 81, 114  
 Marginal lending facility 73-76, 114  
 Member State 9, 11, 101-103, 114  
 Minimum bid rate 80, 82, 90, 95, 97, 99, 114  
 Monetary aggregates 36-38, 62-65, 114  
 Monetary base 41, 71, 77-78, 114  
 Monetary financial institutions (MFIs) 35-39, 115  
 Monetary policy strategy 41-70, 115  
 Monetary policy transmission mechanism 44-49, 115  
 Monetary targeting 56, 68, 115  
 Money demand 56, 115  
 Money market 26, 30-32, 115  
 Money market funds 35-36, 39, 115  
 Neutrality of money 41, 115  
 Nominal effective exchange rates (see effective exchange rates)  
 Non-financial corporations 32-33, 116  
 Open market operations 73-74, 79-84, 116  
 Opportunity cost 63, 116  
 Option 30, 116  
 Output gap 58-59, 116  
 Outright transaction 83-84, 116  
 Overnight deposits 37-38, 77, 116  
 Pension fund 27-29, 39, 116  
 Predictability 68  
 Price stability 9-13, 41-55, 91, 117  
 Projections (see Eurosystem staff projections)  
 Real effective exchange rates (see effective exchange rates)  
 Reference value for monetary growth 62-64, 117  
 Reference value for the fiscal position 23, 117  
 Repurchase agreement 37-38, 74-75, 77, 83, 117  
 Repurchase operation (repo) 83-84, 117  
 Reserve base 77-79, 117  
 Reserve ratio 77-79, 117  
 Reserve requirement 77-79, 118  
 Reverse transaction 73-74, 83-84, 118  
 Risks to price stability 55-56, 63-66, 91-99  
 Stability and Growth Pact 21, 23, 101, 118  
 Stability programmes 23, 118  
 Stage Three of EMU (see Economic and Monetary Union (EMU))  
 Standard tender 75, 80, 82, 84, 118  
 Standing facility 73-77, 87, 119  
 Stock market (see equity market)  
 Structural operation 73, 84, 119  
 Swap (see foreign exchange swap)  
 TARGET 31, 119  
 Tier one asset 75, 119  
 Tier two asset 75, 119  
 Transmission mechanism (see Monetary policy transmission mechanism)  
 Transparency 13, 42, 51, 66-70  
 Treaty 9-16, 23-24, 43-44, 50-51, 67, 69, 101-103, 119  
 Variable rate tender 80-82, 90, 119

